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ABSTRACT

Members met to discuss the various forms of interactive violence and the potential negative impact it has on children at this hearing. Statements made by the following individuals are included in this document: [Panel I]Senator Sam Brownback; Dr. David Walsh, President, National Institute on Media and the Family (additional documents); Mrs. Sabrina Steger, Pediatrics Nurse, Lourdes Hospital; Miss Danielle Shimotakahara, Student;[Panel II] Dr. Craig Anderson, Professor, Iowa State University, Department of Psychology; Dr. Eugene F. Provenzo, Professor, School of Education, University of Miami; and Dr. Jeanne Funk, Professor, University of Toledo, Department of Psychology. Submitted for the record were: Video Software Dealers Association (VSDA); Mr. Douglas Lowenstein, President, Interactive Digital Software Association; and Mr. Jeffrey Goldstein, Department of Social & Organizational Psychology, University of Utrecht, The Netherlands. (MA)

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THE IMPACT OF INTERACTIVE VIOLENCE ON CHILDREN

ED 483 017

HEARING

BEFORE THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

ONE HUNDRED SIXTH CONGRESS

SECOND SESSION

MARCH 21, 2000

Printed for the use of the Committee on Commerce, Science, and Transportation

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THE IMPACT OF INTERACTIVE VIOLENCE ON CHILDREN

TUESDAY, MARCH 21, 2000

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Committee met, pursuant to notice, at 9:35 a.m. in room SR–253, Russell Senate Office Building, Hon. Sam Brownback presiding.

Staff members assigned to this hearing: David Crane, Republican Professional Staff; Paula Ford, Democratic Senior Counsel; and Al Mottur, Democratic Counsel.

OPENING STATEMENT OF HON. SAM BROWNBACK, U.S. SENATOR FROM KANSAS

Senator BROWNBACK. I call the meeting room to order. Thanks for joining us this morning. I want to thank my friend and Commerce Committee Chairman, John McCain, for agreeing to hold this hearing and offering a forum to discuss what has become an important public issue.

We are privileged to hear today from two distinguished panels of witnesses. I appreciate your presence this morning as well. Coming from a long distance, I understand even one of you forfeited your spring break and a trip to Mexico to come here to testify in front of the U.S. Senate Commerce Committee, and I appreciate that deeply.

I think it is also important to note who is not here today. In putting together this hearing, we invited a wide variety of video, PC, and arcade industry executives to testify. We invited the leader of their trade association to testify, and when each of them claimed to have a terribly important meeting at this exact time, we extended the invitation to any member of their company who could represent them, and still in every case we were refused.

It is disappointing that the executives of Sega, Hasbro, Hasbro Interactive, Nintendo, ID Software, Midway Games, the Video Software Dealers Association, the American Amusement Machine Association, and the Interactive Digital Software Association could not be here today. All of them represent powerful and profitable communications companies, but none of them apparently felt they needed to communicate with the U.S. Senate. Nor is this the first time that some of these companies have refused an invitation to testify. This is a shame, but more than that, it is shameful. It shows contempt for Congress. It cannot continue.

We are here today to discuss the potential impact of an increasingly powerful entertainment medium. Over the past several years, the video, PC, Internet, and arcade industry has dramatically increased in terms of profitability and pervasiveness. Video games are no longer relegated to a corner of the pizza parlor. They are now the basis of movies, the inspiration for numerous toys, costumes, magazines, and electronic spin-offs, and are found in an increasing number in homes.

A few months ago, a study was released by the Annenberg Institute of the University of Pennsylvania, which found that the average child in America spends more than 4½ hours a day in front of a screen watching television, playing video games and PC games, and surfing the Internet. Kids spend more time staring at a screen than they do in school or with their parents, which means that what they watch and what they play can have a profound influence on their young minds and young lives.

When it comes to violent television and movies, literally thousands of studies have pointed to a negative link between watching violence and antisocial behavior, responses, and attitudes, but despite the skyrocketing popularity and profitability of violent video games, the impact and influence of these games has largely escaped public and parental attention.

Of course, the majority of video and PC games produced are nonviolent. Many are educational as well as entertaining. Some teachers have praised certain games for their effectiveness in teaching math and motor skills, but there are many games sold in toy stores across the country, advertised in venues accessible to children, and demonstrably popular among young people, which celebrate killing, carnage, and cruelty.

Consider just a few examples: The highly popular game Duke Nukem combines the graphic killing of aliens with images of scantily clad women. Advanced players get to murder naked female prostitutes, some of whom are tied to posts and beg the player to kill them. The games Carmageddon and Twisted Metal cast the player as a deranged motorist, whose aim is to run over as many pedestrians and other drivers as possible. The more bystanders you kill, the higher your score.

In Grand Theft Auto 2, players can engage in drive-by shootings, drug-dealing, and car theft as they simulate gangster activity.

These may seem over the top, but they are actually among the more popular games around. In fact, one survey of fourth to eighth graders found that almost half the kids said their favorite electronic games involved violence.

Now, defenders of these games say that they are mere fantasy and harmless role-playing, but is it really the best thing for our children to play the role of a murderous psychopath? Is it all just good fun to positively reinforce virtual slaughter? Is it truly harmless to simulate mass murder?

That is part of what this hearing is about. We want to take a hard look at these products and, more importantly, their impact. If a typical child spends up to an hour a day playing video and PC games, and I have two children of video-PC age, and they do play a lot of games, it simply stands to reason if they are playing that much of these games, that these experiences will have some impact on their thoughts and feelings. It is simply part of human nature that what we experience affects our attitudes and assumptions and, thus, our decisions and behavior.

The way in which they affect us is bound to be complex and variable, but we need to start asking questions and getting answers. Raising children is a precious duty and a precarious task. It requires nurture, sacrifice, and lots of love, time, and attention, but even the most devoted parents may find it impossible to always know what their child is playing, or to shield their child from images and messages that surround them at school, the mall, at a friend's house, or at an arcade.

Many devoted, loving parents may not know about the messages of these games. They may not know that their children can participate in murder simulations at the local arcade, and even if they do know, they cannot always shield them from the harmful influences. We can no more shield our child from a polluted culture than we can shield them from polluted air.

Parents, of course, have primary responsibility to protect, raise, and care for their children, but it does not mean that the companies have carte blanche to confuse and to corrupt them. We all have a role to play in protecting and caring for children, and in doing what we can to make our country safer and our society more civil. I am hopeful that some of the testimony we will hear today will shed light on a subject that has generated so much heat.

Let me say as well, before we go to our first panel, this has been an area of inquiry by the U.S. Senate for over a year, and we have been concerned that we have not had the depth of study on the impact of interactive violent games. There has been a thought that these have an impact. There has been a concern, a feeling that this is what is happening, but we did not have the studies.

Today we will hear from a number of experts who are studying this issue, and look at the central issue of how does this impact a child? What does playing all of these violent, interactive games do to a child? What does it do to a child if they're playing a game where they commit mass murder, carnage on the road, and are rewarded points for shooting scantily clad prostitutes? What does it do to a child?

That is going to be the central question we are asking. We hope to receive answers from today's hearing, and I am deeply troubled that the industry is not here to say, yes, we have studied this, and here is the impact. Rather, they seem more concerned just about profitability than how their products affect our children. I call on the industry to come forward and answer these questions. Tell us. Tell us what the impact is. If there is no impact, tell us that, and that you have studied this and that you know that to be the case, but do not just hide.

[The prepared statement of Senator Brownback follows:]

PREPARED STATEMENT OF HON. SAM BROWNBACK, U.S. SENATOR FROM KANSAS

Good morning. I want to thank my friend and Commerce Committee Chairman John McCain for agreeing to hold this hearing, and for offering a forum to discuss what has become an important public issue.

We are privileged to hear from a most distinguished panel of witnesses today. I appreciate your presence here.

But I think it is also important to note who is NOT here today. In putting together this hearing, we invited a wide variety of video, PC and arcade industry executives to testify. We invited the leaders of their trade associations to testify. And when each of them claimed to have a terribly important meeting at this exact time, we extended the invitation to any member of their company who could represent them. And still, in every single case, we were refused.

It is disappointing that the executives at Sega, Hasbro, Hasbro Interactive, Nintendo, ID Software, Midway Games, the Video Software Dealers Association, the American Amusement Machine Association, and the Interactive Digital Software Association could not be here today. All them represent powerful and profitable communications companies. But none of them apparently felt they needed to communicate with the United States Senate. Nor is this the first time that some of these companies have refused an invitation to testify. This is a shame, but more than that, it is shameful. It shows contempt for Congress. It cannot continue.

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A few months ago, a study was released by the Annenberg Institute of the University of Pennsylvania which found that the average child in America spends more than four and a half hours a day in front of a screen—watching TV, playing video and PC games, and surfing the internet. Kids spend more time staring at a screen than they do in school, or with their parents—which means that what they watch, and what they play, can have a profound influence on their young minds, and young lives.

When it comes to violent television and movies, literally thousands of studies have pointed to a negative link between watching violence and anti-social behavior, responses and attitudes. But despite the skyrocketing popularity and profitability of violent video games, the impact and influence of these games has largely escaped public and parental attention.

Of course, the majority of video and PC games produced are non-violent. Many are educational, as well as entertaining. Some teachers have praised certain games for their effectiveness in teaching math and motor skills. But there are many games, sold in toy stores across the country, advertised in venues accessible to children, and demonstrably popular among young people, which celebrate killing, carnage, and cruelty.

Consider just a few examples:

- The highly popular game "Duke Nukem" combines the graphic killing of aliens with images of scantily clad women. Advanced players get to murder naked female prostitutes, some of whom are tied to posts and beg the player to kill them.
- The games "Carmageddon" and "Twisted Metal" cast the player as a deranged motorist, whose aim is to run over as many pedestrians and other drivers as possible. The more bystanders you kill, the higher your score.
- In "Grand Theft Auto 2," players can engage in drive-by shootings, drug dealing, and car theft as they simulate gangster activity.

These may seem over the top, but they are actually among the more popular games around. In fact, one survey of fourth-to-eighth graders found that almost half the kids said their favorite electronic games involved violence.

Defenders of these games say that they are mere fantasy, and harmless role-playing. But is it really the best thing for our children to play the role of a murderous psychopath? Is it all just good fun to positively reinforce virtual slaughter? Is it truly harmless to simulate mass murder?

That's part of what this hearing is about. We want to take a hard look at these products, and their impact. If a typical child spends up to an hour a day playing video and PC games, it simply stands to reason that these experiences will have some impact on their thoughts and feelings. It is simply part of human nature that what we experience affects our attitudes and assumptions, and thus, our decisions and behavior. The way in which they affect us is bound to be complex and variable. But we need to start asking questions, and getting answers.

Raising children is a precious duty and a precarious task. It requires nurture, sacrifice, and lots of love, time, and attention. But even the most devoted parents may find it impossible to always know what their child is playing, or to shield their child from images and messages that surround them at school, at the mall, at a friend's house, or at an arcade. Many devoted, loving parents may not know about the mes-

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sages of these games. They may not know that their children can participate in murder simulations at the local arcade. And even if they do know, they cannot always shield them from harmful influences. We can no more shield our children from a polluted culture than we can shield them from polluted air.

Parents of course have primary responsibility to protect, raise and care for their children. But that doesn't mean that companies have carte blanche to confuse and corrupt them. We all have a role to play in protecting and caring for children, and in doing what we can to make our country safer and our society more civil. I am hopeful that some of the testimony we will hear today will shed light on a subject that has generated so much heat.

VIDEO, PC AND ARCADE GAME INDUSTRY EXECUTIVES INVITED TO TESTIFY

Mr. Minoru Arakawa, President of Nintendo of North America, Nintendo of America, Incorporated
Mr. Masahiro Aozono, Chief Executive Officer and Mr. Toshiro Kezuka, Chief Operating Officer (U.S.), Sega of America, Incorporated
Mr. Neil Nicastro, President and Chief Executive Officer, Midway Games, Incorporated
Mr. Tom Dusenberry, President and Chief Executive Officer, Hasbro Interactive
Mr. Todd Hollenshead, Chief Executive Officer, Id Software, Incorporated
Mr. Alan Hassenfeld, Chief Executive Officer and Chairman, Hasbro, Incorporated
Mr. Doug Lowenstein, President, Interactive Digital Software Association
Mr. Bo Anderson, President, Video Software Dealers Association
Mr. Robert Fay, President, American Amusement Machine Association

Senator BROWNBACK. Our first panel includes Dr. David Walsh, who is president of the National Institute on Media and the Family. He has done studies and is an expert on this topic. Mrs. Sabrina Steger is here with us as well, from Paducah, Kentucky. She had a child killed in a terrible tragedy that happened there. And we have a teenage expert with us, Danielle Shimotakahara from North Bend, Oregon, who is doing her own work to try to improve the situation, the plight of children and their education and their entertainment.

We will open the panel up, Dr. Walsh, and go to you first, and we look forward to your testimony.

STATEMENT OF DR. DAVID WALSH, PRESIDENT, NATIONAL INSTITUTE ON MEDIA AND THE FAMILY, MINNEAPOLIS, MINNESOTA

Dr. WALSH. Senator, before we begin testimony, we do have a couple of minutes of video clips, so that we have examples of the games that we are talking about that are of concern. I apologize in advance if some of these images are very offensive, because I think they are, so we are doing it so that people can see. One of the things in my testimony we will talk about is the knowledge gap, and we are trying to reduce the knowledge gap. The other thing is that you will see the advance in the technology.

The first game is the one you mentioned, Duke Nukem. That is about 3 or 4 years old. The two other games, from which there are short, 1-minute clips, are Quake and Unreal. Quake is a game that also the player can put skins on. What that means is that the player can digitally superimpose images of people that they know, or places that are real places, into the game to customize it for their own use.

[A video demonstration was played.]

We actually made some attempts on Sunday, as we were putting this together, to superimpose some images, but we did not complete, so I am not sure exactly how much we did get done, but we were going to try to customize it and then just ran out of time before I had to come to Washington.

If I can just make one comment, or two comments, Senator, that is, a 12-year-old child can walk into almost any store in the United States and buy one of those games.

Senator BROWNBACK. Any of those you displayed?

Dr. WALSH. Yes. We have actually had kids do it. In very few stores would they have any trouble buying those games.

Then the other point that I would like to make is that we watched that for a little over 3 minutes. Kids play these games for hours and hours.

Senator BROWNBACK. Please go ahead.

Dr. WALSH. Computer and video games are the fastest-growing form of media in the lives of young people in the United States, especially boys. They are also the fastest-changing. The processing power of video game platforms has increased an astonishing 188-fold in the past 7 months alone. The goal of a virtual reality experience is right around the corner.

Most producers of these games are using the technology positively to bring games to market that engage, challenge, and entertain. There is a sizable segment of the game industry, however, that produces games like we saw today that feature and glorify violence and antisocial behavior. In this segment, the "kill for fun murder simulators," that is the focus of concern.

My comments are about these violent video games, not video games in general, and I would like to both share data that we have just completed and researched at the National Institute on Media and the Family, and then also make some comments putting the research in a larger context. We are releasing to you and to your fellow Senators today extensive data in written form, and I would like to just highlight some of the findings that we have just released.

Many millions of teens are playing games, 84 percent overall. 92 percent of boys now play. They are spending more time playing games. Boys now average 10 hours a week. At-risk teenage boys spend 60 percent more time playing games, and they prefer the more violent games, than their other peers.

The more time spent playing electronic games, the lower the school performance. Teens who play violent games do worse in school than teens who do not. Youth who prefer violent video games are more likely to get into arguments with their teachers, and are more likely to get into physical fist fights, whether they are boys or girls.

The knowledge gap between youth and parents about games is enormous. Only 15 percent of the teens told us that they think that their parents know about the ratings. Only 2 percent said that their parents routinely check ratings. Eighteen percent of the boys, almost 1 in 5, reported to us that their parents would be upset if they knew what games they were playing.

In terms of the larger context, Senator, next month we will observe the anniversary of the tragic murders at Columbine High School, and once again as a Nation we will be confronting the question, how could this have happened?

As we try to sort this out, I believe that we should address the major role that media plays in shaping today's youth culture. By saying that, I am not suggesting that video and computer games directly caused the murderous rampage. I do not believe that it was their favored game, Doom, that led them to load up their guns. I do believe, however, that media shape the norms, and the norms shape the extremes.

I doubt that anyone would argue against the statement that what happened at Columbine High School last April 20 was extreme. Unfortunately, there have always been, and there always will be, youth who are drawn to extreme behavior, but what qualifies as extreme depends on what's normal. If the entire norm changes, then the extremes change with it. If the norm is respect, then extreme might be a punch in the nose, but when the norm is already in-your-face, then the extremes get very, very tragic, and that is where media comes in.

I believe that whoever tells the stories defines the culture. That is not new. It has been true for thousands of years. What is new is that during the 20th Century we have delegated more and more of the story-telling to mass media. Computer and video games have become very influential story-tellers for this generation of children and youth.

As I said earlier, most game producers take the story-telling part to new heights. Others, however, do not. They specialize in dishing out heaping servings of violence, mayhem, and sexual degradation. Today, the average American child will see over 200 violent acts of television alone by the time high school graduation rolls around, and we have no idea how many simulated murders they will have participated in if they are playing video games like the three that we just saw.

While the research linking electronic games with attitudes and behavior is in the early stages, the research on other forms of media is so overwhelming that few researchers even bother to dispute that screen bloodshed has an effect on the kids watching it.

What do we think the effect of a steady diet of violent video games like Soldier of Fortune could be? Last week, a 15-year-old boy sent to me, and I did not ask him to do this, sent to me an ad for Soldier of Fortune, a new game. Some of the copy reads, "Each gore zone gets a different reaction to keep you from getting bored." In my judgment, the most insidious effect of a diet of this kind of media is not so much the violent behavior, but, rather, the culture of disrespect that it engenders.

For every Eric Harris, Dillon Klebold, or Michael Carneal, there are millions of other kids who are not murdering their classmates, but they are putting each other down, pushing, shoving, and hitting with increasing frequency all the time. Games like these are redefining how it is that we are supposed to treat one another, from "Have a nice day" to "Make my day." Too many of our kids are picking up the kinds of messages contained in the final line of the Soldier of Fortune ad, "Now the only question is where your next target gets it first."

A Cree Indian elder said many years ago, children are the purpose of life. We were once children, and someone took care of us.

Now it is our turn to care. We all, media leaders, game producers, and parents, have to do a lot better job of caring.

Thank you.

[The prepared statement of Dr. Walsh follows:]

PREPARED STATEMENT OF DR. DAVID WALSH, PRESIDENT, NATIONAL INSTITUTE ON MEDIA AND THE FAMILY, MINNEAPOLIS, MINNESOTA

Background

Concern about video game violence is not new. There were calls to ban violent games as early as 1976 when Death Race, often acknowledged as the first violent video game, appeared on the market. Of course, the violence in Death Race seems tame in comparison with today's "first person shooters." As technology advances, each generation of violent games became more graphic and extreme. The processing power of video game platforms has increased an astonishing 188 fold in the past seven months. The goal of creating virtual experiences draws ever closer. The addition of sexual material and crude language raises additional worries.

As the annual report cards issued by the National Institute on Media and the Family have shown, the most violent games still find their way into the hands of millions of children and teens. Since these games have become implicated in the string of recent school shootings, concern has reached new heights. This testimony brings together some of the findings from research to determine if these concerns are justified. In addition it provides findings from ongoing research being conducted at the National Institute on Media and the Family.

Review of Research Literature

The first thing we learn from the research is that it is the younger children who spend the most time playing games. According to one study, the time spent playing video and computer games peaks between the ages of eight and thirteen (Roberts, 1999). A study we completed at the National Institute on Media and the Family found a similar pattern with game playing time peaking between eight and fifteen (Gentile and Walsh, 1999). We also know that youth, especially boys, gravitate to the "action games," which include the "first person shooters." In one study 50% of boys listed violent games as their favorites (Buchman and Funk, 1996). A growing number of children and teens now have the technological skills to customize the computer games. A recent development is putting "skins" on the characters in the games. This means that the player can insert the images of real people and places thereby making the games even more realistic.

Many pre-teens and young teenagers therefore spend a significant amount of time playing electronic games, with a preference for the violent ones. We also know that they have easy and frequent access to increasingly violent and realistic games. The next important question is, of course, "What are the effects of this?" Because the ultra-violent games are relatively new, the research literature is just beginning to accumulate. Research findings appearing in the 1980s and early 1990s are irrelevant because those studies did not include the types of violent games that have proliferated in the past six or seven years. For the last few years most experts have pointed to the vast body of research on television violence. That research clearly shows that a heavy exposure causes negative effects on children (Walsh, Brown, and Goldman, 1996).

Because there has been so little relevant research specifically focusing on electronic games, some state that there is no demonstration of harm to children. That, of course, was the same argument used to defend television violence for more than three decades. It was only after many years of research that that argument was abandoned. That argument, however, will become harder to maintain with regard to electronic games, because some important research findings are starting to appear that support the contention that the violence in computer and video games may indeed have a harmful effect.

I would like to highlight the findings of two research projects that found similar results independently. The first project was done by our collaborator Paul Lynch at the University of Oklahoma Medical School. Lynch has been studying the physiological reactions of teenagers to video games for ten years. He found that violent video games caused much greater physiological changes than non-violent games. The changes were found for heart rate and blood pressure as well as the aggression-related hormones, adrenaline, noradrenaline, and testosterone. A very important finding in Lynch's research is that the effect was much greater for males who pretested high on measures of anger and hostility. In other words, the violent games do not seem to affect everyone the same. Angry youth react much more strongly to violent video games than do more easy-going kids (Lynch, 1999).

This finding was confirmed in a sophisticated research project completed by Craig Anderson of Iowa State University and Karen Dill of Lenoir-Rhyne College. In my judgement, Anderson and Dill have executed the best study of video game violence to date. It will be published in its entirety in a forthcoming issue of the Journal of Personality and Social Psychology. They conducted two separate studies, one of which was an experiment.

In the first study they found a positive correlation between real-life aggressive behavior and violent video game play. In addition, they discovered that violent video game play was correlated with delinquency. Like Lynch, they also found that the correlation was much stronger for individuals who are characteristically aggressive. It is also noteworthy that Anderson and Dill found that the college students who spent the most time playing video games had the lowest grade point averages.

Correlational studies are important but do not establish a causal link. It could be that aggressive people who get into more trouble prefer violent video games. To begin to address the causal question, the two researchers designed an experiment. They used games of the same difficulty thereby ruling out frustration as a reason for aggression that might result from playing a violent game. Those students randomly assigned to play a violent game showed increases in aggressive thoughts and aggressive behavior. The students assigned to a non-violent game did not.

National Institute on Media and the Family Study on Computer and Video Games—Preliminary Results

Douglas Gentile, Ph.D., Director of Research at the National Institute on Media and the Family in collaboration with Paul Lynch of the University of Oklahoma and myself have designed a program of research to determine the effects of video and computer games on children and teens. While the program of research will take a number of years and sufficient funding to complete, I am able to report preliminary findings in this testimony.

These results are based on responses to a survey administered to 137 teens in grades 8–12 in a large suburban school district near a large midwestern city. 94 were students in general classes. 43 were students in a special program for "at risk students."

Electronic Game Habits

- 84% of teens overall play electronic games. 92% of boys play games.
- The average teen plays video games for 1 hour at a sitting (does not include teens who don't play).
- Among boys only, the average length of game play at one sitting is 84 minutes (almost 1½ hours).
- 25% of teens who play games say they understand all of the ESRB ratings, with an additional 29% saying they understand some of them.
- Only 15% of teens say that their parents understand the ESRB ratings.
- 90% of teens say their parents "never" check the ratings before allowing them to buy or rent video games (another 8 percent say their parents "rarely" check the ratings).
- Only 1 percent of teens who play games say their parents have ever kept them from getting a game because of its rating.
- Only 56% of teens who own their own games say that their parents know all of the games they own. Only 46% of boys who own their own games say that their parents know all of the games they own.
- 14% of teens (18% of boys) who own their own games say they have games their parents wouldn't approve of if they knew what was in them.
- 32% of boys who play video games download video games from the Internet.
- 25% of teens (41% of boys) say they have played so much that it interferes with their homework.
- 13% of teens (21% of boys) say they have done poorly on a school assignment or test because they spent too much time playing video games.
- 89% of teens (91% of boys) say that their parents "never" put limits on how much time they are allowed to play video games.
- 42% of teens (52% of boys) say that they sometimes try to limit their own playing, but only 70% of them (67% of boys) are successful in limiting their own playing.
- The average teen likes a moderate amount of violence in their video games (median = 5 on a scale of 1 to 10). Among boys only, the average teen likes a fair amount of violence in their games (median = 7 on a scale of 1 to 10).
- Over three-quarters (77%) of boys who play video games at least "sometimes" customize the video games they play.

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- 41% of boys at least "sometimes" visit game sites on the Internet, and 32% of boys at least "sometimes" play video games over the Internet.
- 15% of teens (29% of boys) say they have felt like they were addicted to video games.
- Among boys only, teens spend an average of 19 hours/week watching TV, 10 hours/week playing video games (includes teens who play zero hours), 18 hours/week listening to music, and 1 hour/week reading for pleasure. (When teens who never play are removed, the average time/week playing video games is 11 hours.)
- Among at-risk boys only, teens spend an average of 25 hours/week watching TV, 16 hours/week playing video games (includes teens who play zero hours), 19 hours/week listening to music, and slightly more than 2 hours/week reading for pleasure (138 minutes). (When teens who never play are removed, the average time/week playing video games is 16¼ hours.)
- Boys expose themselves to more video game violence than girls, and at-risk teens expose themselves to more video game violence than general students (defined from violence levels of 3 favorite games and frequency of playing each—based on Anderson & Dill approach).

Effects: School Performance

- Amount of time playing video games has a negative impact on school performance, by many different measures: Teens who play more each week, play more yearly, and have played more over their lifetimes perform more poorly in school (as self-reported) than teens who play less.
- Teens who say they like to have more violence in their games perform more poorly in school than teens who like less violence.
- Teens who named more violent games as their favorite three games perform more poorly in school than teens who named less violent games as their favorites.
- Teens who expose themselves to more violence in video games perform more poorly in school than teens who expose themselves to less violence in video games.

Effects: Arguments with Teachers

- Teens who prefer more violence in their video games get into arguments with their teachers more frequently than teens who prefer less violence in their video games.
- Teens who expose themselves to more violence in video games argue more frequently with their teachers than teens who expose themselves to less violence in video games.

Effects: Physical Fights

- Amount of time playing video games is positively correlated with getting into physical fights, by many different measures: Teens who play more each week, play more yearly, and have played more over their lifetimes are more likely to have gotten into a fight in the past year than teens who play less.
- Similarly, teens who say they are more familiar with video games are more likely to have gotten into a fight in the past year than teens who are less familiar with video games.
- Teens who prefer more violence in their video games are more likely to have gotten into a physical fight in the past year than teens who prefer less violence in their video games.
- Teens who named more violent games as their favorite three games are more likely to have gotten into a physical fight in the past year than teens who named less violent games as their favorites.
- Teens who expose themselves to more violence in video games are more likely to have gotten into a physical fight in the past year than teens who expose themselves to less violence in video games.

Significant Differences between General and At-Risk Teens

- At-risk teens perform more poorly in school.
- At-risk teens name more violent games as their three favorite video games.
- At-risk teens get into arguments with parents, peers, and teachers more frequently than general teens.
- Among boys only, at-risk boys are less likely to say they usually feel "positive" after playing video games.

Some Significant Differences between Boys and Girls

- Boys are more familiar with video games than girls.
- Boys play more frequently than girls.
- Boys are more likely to own their own games than girls.

- Boys play longer at each sitting than girls (means = 84 and 40 minutes, respectively).
- Boys like more violence in their video games than girls.
- Boys play more each week than girls (means = 10 and 3 hours, respectively).
- Boys name more violent games as their three favorite games than girls.
- Boys expose themselves to more video game violence than girls.

These sample sizes provide data accurate to ±10% when generalizing to general populations of teens, and to ±17% when generalizing to at-risk populations of teens.

Additional studies will need to be completed before we can claim that there is a demonstrated cause effect relationship between video game violence and real life aggression. However, the recent research developments show that the concern about the impact of violent video games is justified. It should act as a spur for both more research and for greater vigilance over the video and computer game diet of children and youth.

Senator BROWNBACK. Could you hold that ad up again? Could you explain it?

Dr. WALSH. That is an advertisement for a new game which was just released called "Soldier of Fortune," and the torso is divided up into different segments called gore areas, gore regions, and it is to keep the player from getting bored. When you hit the different areas, then different things happen.

The other reason I brought this is that the industry announced last fall that they were implementing an advertising code of conduct and would be cracking down on advertising which is inappropriate. I would submit that this is inappropriate in gaming magazines that kids subscribe to.

Senator BROWNBACK. I would, too. Thank you very much for your testimony, and I will look forward to asking some questions I have for you.

We will next go to Mrs. Sabrina Steger. We are pleased you are willing to come and share your testimony with us. Mrs. Steger, the floor is yours.

STATEMENT OF MRS. SABRINA STEGER, PEDIATRICS NURSE, LOURDES HOSPITAL, PADUCAH, KENTUCKY

Mrs. STEGER. I am the person that you do not want to be. I live a parent's worst nightmare. The nightmare does not go away, and the saying that time heals all wounds is greatly overrated. I looked into a casket and saw my little girl. There are no words to describe how it feels. Nothing looks the same or feels the same after seeing your own child lying in a casket.

On December 1, 1997, the 14-year-old boy took the sum total of influence on his life and five guns into Heath High School. After watching students pray, he opened fire on them. Kayce, Jessica, and Nicole died that day. So did this country's belief that schools are a safe haven for our students.

When I learned that my daughter, Kayce, might be involved, I rushed back to the hospital that I worked at for 20 years. As I approached the emergency room, arms held me back. Every time I tried to get close to Kayce, arms stopped me. Those arms were connected to familiar-sounding voices, but they were trying to stop me from doing the only thing that mattered, getting to my little girl. I still have nightmares about those arms.

I am here today to ask you not to be an arm, an obstacle that makes it harder for parents to protect their children. We believe that the Heath shooter was influenced by the movies he watched, the video games he played, and the Internet sites he accessed. Video games are a common form of entertainment, and more and more often they are violent. Even before Kayce was killed, my kids did not play violent games, but I did not know how big the monster was.

Despite what some parents think, these are not the games that we played. Today's games are so sophisticated that some even have recoil after a shot is fired. They are so real, the military uses them to train soldiers. But the soldiers are adults, and the simulations are carefully monitored. Yet the video games are as effective as the simulators. Just how deadly? The Heath shooter, despite practicing only once before the murders, did not miss a shot.

The recent Diallo case involved police firing 41 rounds and hitting the man 19 times. Less than half the shots fired by trained policemen hit their target, but 100 percent of those fired by teenagers hit students in the kill zone, one shot per victim. He did not shoot until they fell. He had learned his games very well.

My son Dustin was 9 years old when his sister was killed. He was at the hospital when she arrived, and he watched the paramedics take her off the ambulance doing CPR. He saw her lying lifeless on the stretcher. He looked at his parents, the ones who could not protect Kayce, and wondered if they could take care of him. He and his sister, Becky, saw their home change from one of laughter to one of tears. They saw their own childhoods end that day. Their lives and futures were forever changed the second the killer decided to pull the trigger.

Dustin has a PlayStation, and he enjoyed racing and sports games. He wanted a skate-boarding game for a long time, but was disappointed when he got it. The tricks are "sweet." For anyone without children, that means real good. But every time the skateboarder falls, blood squirts. Dustin does not want to see the blood, but it cannot be turned off. My son does not have the choice of playing a game the way he wants to, without gore.

Some ask if video games have that much influence. The advertising industry is built on 30 to 60-second spots that influence what soft drink or car we buy, or what candidate we vote for. How, then, can we deny that hours of repetitive video play does not have a gargantuan effect on impressionable children and adolescents?

For months after Kayce died, I was in denial. My head knew she was dead, but my heart believed she would walk through the back door again. Denying the truth does not change the truth. As a nurse, I am in the business of recognizing signs of illness and promoting healing, and I see an America addicted to violence and in denial of that addiction. It permeates our homes, playgrounds, and schools. We try to tell ourselves that it is somebody else's problem, an isolated instance. Well, my isolated instance was 15 years old, with cute little dimples, and the dream of becoming a police officer. She had a heart, a soul, a face, and a name, Kayce Michelle Steger.

Numbness helped me get through the first months after Kayce died, and frankly there are still times when I wish for the buffering numbness to protect me from the horrors of reality. Numbness helps me to function on a bad day. But when America is numb, more children die. Numbness prevents dealing with an issue. With violent video games, time is life.

Studies show that one of the most common effects of violent interactive games is desensitization, a type of numbing. The studies since the 1960's show that children are affected both physically and emotionally by the violence. One recent study shows differences measured by scanners and the brain wave after exposure to violence. In these games violence is sterile, acceptable, and even desirable. Blood on the screen has no odor. It cannot be touched. Screams are controlled by the volume button, and slaughter by the on-off button. Too often, the volume is on high. Death is repeated each time the restart button is touched.

My daughter's killer, who played "Doom" and "Mortal Kombat," planned for months to take over the school. He dreamed of being in control at the loss of his classmates, and he intended to return to school the next day and be admired for his bravery. The game industry knows how to make cheap, easily produced, first-person games, and they market to kids who sometimes feel vulnerable during a time of many physical and emotional changes. The games promise them power and control. That is as intoxicating to some as drugs or alcohol.

The industry also knows how to make a new, safer game, but it costs more to produce and market. It is time for a new generation of games that place value on human life. The United States is committed to the right to free enterprise, and I say bravo, and I say just as strongly hear, hear to the notion that with rights come responsibilities.

We are suing the makers of the violent video games that so profoundly influenced Kayce, Nicole, and Jessica's killer. Our lawsuit is not about free speech. It is about product liability, plain and simple. Any person or company that makes a product is responsible for the harm that comes from its use. The same standards hold true if the product influences a person to harm himself or others. Carmakers like to make cars safer partly due to product liability cases. Let them make games however they wish, but when they do the equivalent of falsely yelling fire in a crowded movie theater, they have to accept the moral and legal obligations for their irresponsibility. Sometimes, the best way to make a company understand safety and responsibility is through their pocket-books.

A few weeks after Kayce was killed, someone suggested we should quit talking about the murders, forget about the lawsuit, and get back to normal. It is normal for us to have three children at the dinner table, but there are only two. When my husband and I should have been discussing college choices for Kayce, we were discussing tombstone choices. When my daughter Becky asked, mom, how do I be older than my big sister, I did not find any answer from Dr. Spock. The shooter took normal away from my family, as all shooters do with every victim of gun violence.

The person who wanted us to get back to normal was saying that we made him uncomfortable by reminding him of something bad. Video game makers want us to go away, too. They do not want us to demand changes that might affect their bottom line. They do not want us to make the world better. But our children are worth it.

I live with the fact that I was powerless to prevent Kayce's death that morning. I would be letting her down, making her death even more senseless, if I did not do whatever I could to try to prevent the death of another child.

I may not have much power, but the U.S. Senate does. Please help us prevent the death of innocent children, the victims of killers influenced by violent video games. First, ban the sale of games rated for mature audiences to minors. Do not let them have such easy access. Next, fund a public awareness campaign to educate Americans about the dangers of these games. As the gentleman said, parents do not know how bad these games are.

And finally, help us hold accountable the makers of these dangerous products. Let accountability stand in the courtroom, and not be abridged by favoritism in the back rooms. Ending violence is a public health and a civil rights struggle. It is time to leave the comfort and stupor of denial and open our arms to balancing rights with responsibilities, and remedying our horrible national addiction to violence.

Thank you. This is why I am here [holding picture].

[The prepared statement of Mrs. Steger follows:]

PREPARED STATEMENT OF MRS. SABRINA STEGER, PEDIATRICS NURSE, LOURDES HOSPITAL, PADUCAH, KENTUCKY

I am the person you do not want to be. I live a parent's worst nightmare. The nightmare does not go away and the saying that time heals all wounds is greatly overrated.

On December 1, 1997 a fourteen-year-old boy took his thoughts and feelings, the sum total of the influences in his life, and five guns into Heath High School. After watching students pray, he opened fire on them. Kayce, Jessica, and Nicole died that day. So did this country's belief that schools are a safe haven for its students.

When I found out that my daughter, Kayce, might have been involved, I rushed back to the hospital I've worked at for 20 years. I had just finished a midnight shift. As I approached the emergency room, there were arms holding me back.

Every time I tried to get a little closer to Kayce, arms stopped me. Those arms were connected to familiar-sounding voices, but the arms were trying to hold me back from the only thing that mattered—getting to my little girl. I still have nightmares about those arms, those obstacles keeping me away from Kayce. I am here today to ask you to not be an arm, an obstacle, that makes it harder for parents to keep their children safe.

We believe the Heath High School shooter was influenced by the movies he watched, the video games he played, and the Internet sites he accessed. With his easy access to guns, his violent urges were allowed to take on a life outside his own troubled mind.

Video games are a common form of entertainment for many young people and more and more often the games are violent. Even before Kayce was killed, I did not allow my kids to play violent games, but I did not know how big the monster was. It isn't Pong or Pac-Man these kids are playing. Despite what some parents think, these are not the video games we played.

Today's games are so sophisticated that some of them even have a recoil after a shot is fired. They are so real that the military uses them to train soldiers. But, the soldiers are adult men and women, not impressionable children. And, the simulations are carefully controlled and monitored, not played whether or not there is adult supervision.

Yet, the video games are as effective as the simulators. Just how deadly are they? The Heath High School shooter did not miss one shot. From the criminal investigation, we know he practiced only one time with the gun prior to committing murder. A recent case in the news involved police officers firing 41 rounds and striking one man with 19 shots. Less than half of the shots fired by trained policemen hit their target, but 100% of those fired by a teenager hit students in the kill zone, one shot per victim. He didn't shoot until they fell. He learned his game all too well.

Statistically, the average twelve-year-old has seen 8000 murders. Today I am here to tell you about one murder that affected one family, my family. It is being lived out in different stages by the families of the 13 people killed by gun violence every day, 365 days of the year.

My son Dustin was nine when his sister was gunned down. He was at the hospital when she arrived. He saw Kayce taken out of the ambulance with paramedics doing CPR on her. He saw her lying lifeless on a stretcher a little later. He looked at his parents, the ones who could not protect Kayce, and wondered if they could take care of him. He and his sister Becky saw their home change from a place of laughter to a place of tears. In so many ways, they saw their own childhoods end that day. No more innocence, no more carefree days—their lives and futures were forever changed the second that the killer decided to pull the trigger.

There are plenty of kids, who like most adults, who do not want gratuitous violence in video games. My son has a Playstation and he enjoys racing and sports games. For a long time, he wanted a skateboarding game. He finally got it, but he was quickly disappointed. The tricks are "sweet" (for anyone without kids, that means real good), but every time the skateboarder falls blood squirts. Dustin does not want to see the blood, but there aren't any controls to stop it. My son who does not chose blood and guts does not have the choice to play the game the way he wants to. The game is very seldom played.

Violent video games and movies desensitize users to the violence by making it sterile, acceptable and even desirable. Defilement and carnage all too prevalent on the silver screen is easily transferred to any home by video games seen through hand held screens, TV screens and computer monitors.

Blood on the screen has no odor and it cannot be touched. Screams are controlled by the volume button, and slaughter by the on/off button. But, the button is too often "on," the volume on high, and death repeated each time the restart button is touched.

Some question if video games can have that much influence on young people. The entire advertising industry is built on the knowledge that 30 to 60 second advertisements influence what soft drink or car we buy, and what candidate we vote for. How can we then deny that hours on end of repetitive video game violence does not have a gargantuan impact on impressionable children and adolescents?

For months after Kayce died, I was in denial. My head knew she was dead, but my heart did not believe it. Part of me believed that she was going to walk through the back door again. I was going to hug her for a week and ground her for a month.

As a nurse I am in the business of recognizing illness and injury and being proactive about healing. And, I see an America both addicted to violence and in denial about this addiction. It permeates our homes, playgrounds, and schools. We try to tell ourselves that its somebody else's problem, and isolated incidents. My isolated incident was 15 years old with cute little dimples and the dream of becoming a police officer. She had a heart, a soul, a face, and a name, Kayce Michelle Steger.

Numbness helped me get through the first months after Kayce died and frankly, there are still times when I wish for the numbness. It is a buffer; it protects our emotions from the horrors of reality. For me, numbness helps me to function during a bad day. For our country, numbness allows more children to die. When we are numb, we don't deal with the issue. With violent video games, time is life.

Studies show that one of the most common effects of violent video is desensitization, a type of numbing affect. Scientific studies since the 1960s prove that kids are affected by the violence. One recent study even demonstrates a change in brain patterns measured by a scanner. My daughter's killer, who played Doom and Mortal Kombat, planned for months to take over the school. He dreamed of being in control of the lives of his classmates and he intended to return to the school the next day to be admired for his bravery.

The game industry knows how to make games and they know kids. They know that some adolescents have feelings of being vulnerable during a time of many physical and emotional changes. The games promise them power and control that is as intoxicating to some kids as alcohol or drugs. And just like with alcohol or drugs, kids deny the effects it has on them.

The game industry also knows how to make a better game. But new games that are safer for children to use cost more money to produce and market. The first-person shooter game is cheap and easy and there are thousands of young kids waiting for a new gun to blow away more victims. It is time for a new generation of games—a generation that places value on human life.

As early as the 1960s we recognized the harmful effects of other adverse influences. So great was the public outcry against tobacco and alcohol it forced bans on TV advertising and limited availability of tobacco and alcohol products. It is time to raise our voices again.

The United States is committed to the rights of free enterprise, and I say "bravo." And, I say just as strongly "here, here" to the notion that with rights comes responsibilities. We are suing the makers of the violent video games that so profoundly influenced and warped Kayce's, Jessica's and Nicole's killer. Our lawsuit is not about free speech. It is about product liability. Plain and simple.

Any person or company that makes a product is responsible for the harm that comes from the use of the product. The same standard holds true if the product influences a person to harm himself or others. Car makers learned to make safer cars partly as a result of product liability cases. The same product liability standards that apply to any other manufacturer are the standards we expect of those who produce violent entertainment.

By holding entrepreneurs of violent entertainment to the these standards we are taking steps to keep us all safer. Let them make games as they wish. But, when they do the equivalent of falsely yelling "fire" in a crowded movie theater, then they have to accept moral and legal responsibility for their irresponsibility. We do not ask them to conform to any standard of decency. We expect them to be accountable when their product cause harm to others. Sometimes, the best way to make a company understand safety and responsibility is through their pocketbooks.

I looked into a casket and saw my little girl. There are no words that come close to describing how it feels. Before Kayce died, I was an Intensive Care Unit nurse, taking care of dying children. I tried to put myself in the parents' place as I cried with them when their child's heart wasn't beating any more. I thought I was as close as I could be without losing a child of my own. I know now that I wasn't even on the same planet. Nothing looks the same or feels the same after seeing your own child lying in a casket.

A few months after Kayce was killed, someone suggested that we should quit talking about the murders and forget about any lawsuits and just get back to "normal." It is normal for us to have three children at the dinner table, but there are only two. When my husband and I should have been discussing college choices for Kayce, we were discussing tombstone choices. When my daughter Becky asked, mom, how do I be older than my big sister. I didn't find any answer from Dr. Spock. The shooter took normal away from my family, and all shooters do with every victim of gun violence.

The person who wanted us to get back to normal was saying that we upset him and made him uncomfortable by reminding him of something bad. Video game makers want us to go away too. They don't want us to speak out about the poison they put into children's minds. They don't want us to demand changes that might affect their pocketbooks. But all of our children are worth more than any bottom line. I live with the fact that I was powerless to prevent Kayce's death that morning. I would be letting her down, making her death more senseless if I didn't do whatever I could to try to prevent the death of another child.

They say that losing a child is the ultimate tragedy. Its even worse when the senseless death of a child shows us nothing and allows the senseless death of another little girl and another little boy.

I may not have much power, but the United States Senate does. Let accountability stand on its own merits in the court room, and not be abridged by favoritism in the back rooms. Please help us prevent the death of innocent children, the victims of killers influenced by violent video games.

- First, ban the sale of these games to minors.
- Next, fund a public awareness campaign to educate Americans about the dangers of these games.
- And finally, help us hold accountable the makers of these dangerous products.

Ending violence as we know it is both a public health and a civil rights struggle. It is time to leave the comfort and stupor of denial. It is time to heal, and in doing so, open our arms to balancing rights with responsibilities, and remedying our horrible national addiction to violence.

Senator BROWNBACK. Thank you for sharing that powerful testimony of a difficult situation for you and your family. We deeply appreciate your willingness to come here today and to share that with us.

Our final witness on this panel is Miss Danielle Shimotakahara from North Bend, Oregon. Danielle is, I believe, 12-years-old, and has started her own campaign dealing with violent video games. Danielle, we would love to have you testify. If you could get those microphones up right next to your mouth, it is pretty directional, so you need to talk right into it.

STATEMENT OF MISS DANIELLE SHIMOTAKAHARA, STUDENT, NORTH BEND, OREGON

Miss SHIMOTAKAHARA. On the day of the Columbine massacre in April 1999, I came home from school and told my mom about the graphically violent video games that are at pizza parlors, bowling alleys, skating rinks, and other places where kids hang out. I told her that I did not think that little kids should be playing them. I asked her what we could do to get rid of them.

I felt that a petition signed by kids might influence businesses to move or replace them with nonviolent ones. I designed a petition to get rid of violent video games in places where children hang out. I brought my mom to see these games because she had never seen them. She was shocked. She helped me with the design for a petition. She helped me do research about violence in the media and on electronic games. I made a bibliography and put it with the petition.

I think these types of games are disgusting. Kids as young as 3 years old can use mounted guns to shoot people to pieces and watch blood splatter on the screen. Kids get points for killing people. Parents eat pizza while their kids blow somebody up. I have friends who play them. Their eyes look crazy when they play them, and they get excited when the blood splatters and parts of bodies fly.

On some machines they can make choices about what type of gun to use. I think it teaches kids bad things. Some older kids can get bad ideas from it, and little kids can have nightmares. I think it is important to keep these types of coin-operated video machines away from the eyes and hands of children. I do not think these games are entertainment. I do not think it is entertaining for a kid to eat pizza or a hot dog and watch someone kill someone on a gaming machine.

These machines are almost everywhere that kids go. I think it is important to especially keep little kids away from them, because they do not know whether they are real or not. Little kids still believe in Santa Claus. Psychological research says that children under the age of 7 do not know the difference between fantasy and reality.

I think it gives a message to older kids that it is okay to kill people. The killer is the hero even if he is killing policemen. Kids identify with the hero. Kids play them so many times they become desensitized to seeing blood or bodies exploding. The more people they explode, the more blood spattering they see in some games. They are also learning conditioning, when they shoot guns at people and get points for it.

I think it is sad that they are laughing while they are doing it. The boy who did the killing in Arkansas a few years ago learned to shoot a gun by playing these types of games. He had excellent marksmanship. I think that it teaches some kids to be violent, and I think a few of those kids will think about acting it out on innocent people. Others actually might be influenced to do it. I think it is the same as selling alcohol, drugs, pornography, or tobacco to kids.

These video machines are similar to the ones that are used to train police officers and the military. Parents are not always with older kids to see what they are playing, and so a lot of kids do not know, and I think they need to know. I became even more inspired later in May when I read that Disney removed its violent video games from its arcades, and my mother saved the article to show people.

I think everyone needs to be educated on the potentially harmful effects of these machines on kids. Little kids get nightmares from playing these games. I had an educational table at Children's Health Carnival on March 10. One kid who was probably 8 or 9 says he likes playing these games, but he also gets nightmares from them.

Violent blood-spattering gun-mounted coin-operated video games are almost everywhere young children go. I feel these machines are a bad influence on young children. Children climb on chairs or get on footstools to use them at pizza parlors, skating rinks, and movie theaters.

Mom and I watched a 3-year-old girl splatter blood on one of these machines at a pizza parlor while the babysitter helped her balance on the footstool. She was holding a mounted gun, and when she missed the mother hollered from the table, "Aim higher next time." I told my mom that the babysitter should be fired, and she said, "I think the parent should be fired." We talked to the mom about how dangerous it is to expose little kids to this violence, and I think she understands now.

I want people to learn and think about these machines. I know that a lot of parents did not even know that these types of games were being played by their kids until I started this petition. Parents do not go into the game room at pizza parlors. They just give out the quarters and eat their pizza with other parents. Every parent should go in the game room and check out what games are there. It makes you feel sick just to watch them. I get cards and letters and phone calls from parents telling me that they threw out violent software video games when they heard about my petition.

The petition is not a valid petition because it contains the names of both children and adults. Some are 5 years old. They can hardly print. They print in very large letters. Their big printing makes an even bigger statement. I believe that this is our voice as children. There are 3,000 to 4,000 signatures on the petition, and people and kids are still signing it. We are young, and we cannot vote, but we can express our opinions in this way.

The project is going to continue for a long time, because it is really hard to convince some people about the dangers. Some will not even listen. Some parents do not think it is harmful for a child to make blood splatter and body parts explode. I do not understand why they think it is okay to do this killing.

It takes a lot of time to make a change, and I discovered that some people can be very stubborn and refuse to listen when they are making a lot of money from something, even if that something is not a good thing. I learned that wording is important on a petition. The petition states, "We are asking businesses to voluntarily remove these machines." Until a law is passed, a business needs to make its own decision.

Teresa Sherwood, the owner of Dave's Pizza in North Bend, Oregon, said that she was having trouble getting the business that she leased her violent machines from to come and take it away. She said, "I had to be persistent to get nonviolent ones. He said that he only had a few nonviolent ones and they were in other places." She said, "After your petition came around, I got pushy. I told him my patience was gone and he had to come and get it. It sat there for a month unplugged before he came for it."

She said that she had not noticed any change in the amount of business that she gets since she took out the violent ones, and there are still lots of kids there. She said, "The kids loved the new basketball one. They go crazy over it." Some business owners told me that they would lose money if they took them out, but her story proves otherwise.

More parents now pay attention to the video games that their kids play. Some businesses moved them into an adult area or turned them off. One businessman said that he would not renew the lease for his machine. I think that all of society will benefit and the world will be a better place when these machines are not in places where kids go to eat and play.

Some of these machines include Area 51, with two mounted guns, all the Mortal Kombat machines, where they use their fists to make body parts splatter, Police Trainer, where they use sniper rifles and two mounted guns and look through a scope, CarnEvil, that uses two mounted shotguns, and Silent Scope, where they use mounted sniper guns and sneak up on ordinary people and shoot them for no reason.

I think that it would be a good idea for Senators to go to a place like an arcade or a pizza parlor and try out these machines so you know what they do. If you feel too embarrassed to go by yourself, offer to bring your teenager or a close friend's son or daughter to play or watch a violent video blood splatterer. You will see first-hand what it is all about.

I took my petition to the Oregon State Senate, where 29 out of 30 Oregon State Senators signed it. Senator Veral Tarno invited me to the Senate, where I spoke to the Judiciary Committee. I presented the petition to city councils, churches, and civic officials. Resolutions were written and passed as a result. The Oregon-Idaho Conference of United Methodist Churches passed two resolutions, and one will go to the National Conference in Cleveland in June. Coos Bay passed Resolution 99–18. Oregon State Senator Veral Tarno is presently working on a draft for legislation regarding violent video gaming machines.

My project involves other activities: an educational play on video game violence that I am going to work on with my church youth group, lapel buttons, and a Cool-No-Violence window/door sticker that I designed for businesses that do not allow children access to these types of machines. This sticker is like the No Smoking sticker, except it has a violent video game image on it and a slash across it with the words, Cool-No-Violence, and C-NO-V. I designed it and Fran Holland, who is a local graphic artist, further developed it on her computer. I had a donation for a few tee-shirt transfers for the Cool-No-Violence logo.

It is a controversial issue. I have been called names. Some business owners got very angry. They said that they make money from these machines and they do not want to lose money. It is not an easy project. It is really hard to do, but I think it is important, and maybe there will be fewer kids thinking that they should kill somebody.

I would tell other young people that it was a really good thing to do. If you feel something needs to be changed to make society safer and better, you can do it. It is a lot of hard work, but it pays off. Do not think just because you are young people will not listen to you. I discovered that adults do respect us as kids.

I strongly feel that young children should not be exposed to these types of games, and that if a business wants to have them, they should put them in an area of their business that restricts access by young children to playing them, as well as seeing someone else play them.

[The prepared statement of Miss Shimotakahara follows:]

PREPARED STATEMENT OF MISS DANIELLE SHIMOTAKAHARA, STUDENT, NORTH BEND, OREGON

My name is Danielle Shimotakahara and I am 12 years old.

On the day of the Columbine massacre in April of 1999, I came home from school and told my Mom about the graphically violent video games that are at pizza parlors, bowling alleys, skating rinks and other places where kids hang out. I told her that I didn't think that little kids should be playing them. I asked her what we could do to get rid of them. I felt that a petition signed by kids might influence businesses to remove or replace them with nonviolent ones. I designed a petition to get rid of violent video games in places where children hang out. I brought my Mom to see these games, because she had never seen them. She was shocked. She helped me with the design for a petition. She helped me do research about violence in the media and in electronic games. I made a bibliography and I put it with the petition.

I think these types of games are disgusting. Kids as young as three years old can use mounted guns to shoot people to pieces and watch blood splatter on the screen. Kids get points for killing people. Parents eat pizza while their kids blow somebody up. I have friends who play them. Their eyes look crazy when they play them and they get excited when the blood splatters and parts of bodies fly in pieces. On some machines, they can make choices about which type of gun to use. I think it teaches kids bad things. Some older kids can get bad ideas from it, and little kids can have nightmares. I think it is important to keep these types of killer coin-operated video machines away from the eyes and hands of children. I don't think these games are entertainment. I don't think it is entertaining for a kid to eat pizza or a hot dog and watch a person kill somebody on a gaming machine. These machines are almost everywhere that kids go. I think it is important to especially keep little kids away from them, because they don't know whether they are real or not real. Little kids still believe in Santa Claus. Psychological research says that children under the age of seven do not know the difference between fantasy and reality.

I think it gives a message to older kids that it is O.K. to kill people. The killer is the hero, even if he is killing policemen. Kids identify with the hero. Kids play them so many times that they become desensitized to seeing blood or bodies exploding. The more people that they explode, the more blood splattering, they see in some games. They are also learning conditioning when they shoot guns at people and get points for it. I think it is sad that they are laughing while they are doing it. The boy who did the killing in Arkansas a few years ago learned to shoot a gun by playing these types of games. He had excellent marksmanship. I think that it teaches some kids to be violent, and I think a few of those kids will think about acting out that violence on innocent people. Others actually might be influenced to do it. I think it is the same as selling alcohol, drugs, pornography, or tobacco to kids.

These video machines are similar to the ones that are used to train police officers and the military. Parents are not always with older kids to see what they are playing so a lot of parents don't know, and I think they need to know. I became even more inspired later in May when I read that Disney removed its violent video games from its arcades and my mother saved that article to show to people. I think everyone needs to be educated on the potentially harmful effects of these machines on kids. Little kids get nightmares from playing these games. I had an educational table at a Children's Health Carnival on March 10. One kid who was probably eight

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or nine says he likes playing these games, but he also said he got nightmares from them.

Violent blood splattering gun mounted coin operated video games are almost everywhere young children go. I feel these machines are a bad influence on young children. Children climb onto chairs or get up on footstools to use them at pizza parlors, skating rinks, movie theaters. Mom and I watched a three year old girl splattering blood on one of these machines at a pizza parlor while the babysitter helped her balance on the footstool. She was holding a mounted gun, and when she missed, the mother hollered from the table, "Aim higher next time." I told my Mom that the babysitter should be fired and she said, "I think the parent should be fired." We talked to the Mom about how dangerous it is to expose little kids to this violence and I think she understands, now.

I want people to learn and think about these machines. I know that a lot of parents didn't even know that these types of games were being played by their kids until I started this petition. Parents don't go in the game room at pizza parlors. They just give out the quarters and eat their pizza with other parents. Every parent should go in the game room and check out what games are there. It makes you feel sick just to watch them. I get cards and letters and phone calls from parents telling me that they threw out violent software video games when they heard about my petition.

The petition is not a valid petition because it contains the names of both children and adults. Some are five years old. They can hardly print. They print in very large letters. Their big printing makes an even bigger statement. I believe that this is our voice as children. There are 3000–4000 signatures on the petition and people and kids are still signing it. We are young and we can't vote but we can express our opinions in this way.

I discovered that a lot of kids that I thought were playing these games were surprisingly not playing them. One of those was a boy in my school, Jack Rabin, who later helped me do a presentation to a City Council meeting. I definitely learned not to judge people by what I had heard about them from others. You have to meet and talk with them, yourself. I realized that it is easier to prevent younger kids from playing these machines than it is teenagers, because teenagers have been playing them for a long time. I determined that parents have to be involved in what their kids are doing, and that kids need to have limits, even though we sometimes disagree.

The project is going to continue for a long time, because it is really hard to convince some people about the dangers. Some won't even listen. Some parents don't think it is harmful for a child to make blood splatter and body parts explode. I don't understand why they think it is OK to do this killing. It takes a *lot of time* to make a change and I discovered that some people can be very stubborn and refuse to listen when they are making a lot of money from something, even if that something is not a good thing. I learned that wording is important on a petition. The petition states, "we are *voluntarily* asking businesses to remove these machines." Until a law is passed, a business needs to make its own decision.

Teresa Sherwood the owner of Dave's Pizza in North Bend, Oregon said that she was having trouble getting the business that she leased her violent machine from to come and take it away. She said, "I had to be persistent to get nonviolent ones. He said that he only had a few nonviolent ones and they were in other places." She said, "After your petition came around, I got pushy. I told him my patience was gone, and to come and get it. It sat there for a month unplugged, before he came for it." She said that she has not noticed any change in the amount of business that she gets since she took out the violent ones, and there are still lots of kids there. She said, "The kids love the new basketball one. They go crazy over it." Some business owners told me that they would lose money if they took them out, but her story proves otherwise.

More parents now pay attention to the video games that their kids play. Some businesses moved them to an adult area or turned them off. One business said that he would not renew the lease for his machine. I think that all of society will benefit and the world will be a better place when these machines are not in places where kids go to eat and play.

Some of these machines include Area 51 with two mounted guns, all the Mortal Kombat machines where they use their fists to make body parts splatter, Police Trainer where they use sniper rifles and two mounted guns and look through a scope, Carnevil that uses two mounted shotguns, Silent Scope where they use mounted sniper guns and sneak up on ordinary people and shoot them for no reason. I think that it would be a good idea for Senators to go to a place like an arcade or a pizza parlor, etc. and try out these machines so you know what they do. If you feel too embarrassed to go by yourself, offer to bring your teenager or a close friend's son or daughter to play or watch a violent video blood splatterer. You will see first hand what it is all about.

The project is still ongoing and I still have more educating to do. With the help of many organizations, I have been working with the Southwestern Oregon Medical Society Alliance to raise more than $8000 to bring an internationally recognized speaker to the area to speak on this issue on April 24, 25, and 26. I will be appearing with this speaker as he does presentations at seven middle schools. He will also speak at parent, student, mental health professional, and police groups, and for the general public. The speaker will be Lt. Col. David Grossman, an expert on TV, movie and video game violence. I will answer questions on a radio call in show with him as well.

I took my petition to the Oregon State Senate where 29 out of 30 Oregon State Senators signed it. Senator Veral Tarno invited me to the Senate, where I spoke to the Judiciary Committee. I presented the petition to city councils, churches and civic officials. Resolutions were written and passed as a result. The Oregon-Idaho Conference of United Methodist Churches passed two resolutions and one will go to the National Conference in Cleveland in June. Coos Bay passed Resolution 99–18. Oregon State Senator Veral Tarno is presently working on a draft for legislation regarding violent video gaming machines.

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The local newspaper in Coos Bay called The World, has been covering this peace project on the front page and a recent editorial discussed it. Education Week and Guideposts for Kids also interviewed me for an article. The Oregonian newspaper will have an article on it today, March 21.

I just received the Prudential Spirit of the Community Award as the top Oregon Middle School Volunteer for 2000. My project was chosen from 20,000 applications and I get to come back to Washington, D.C., where I will meet 103 other honorees and participate in national recognition events in May for four days. One event will be a Congressional breakfast. I just found out my project has also been selected as a finalist for another award chosen from 100,000 applications from 99 countries.

It is a controversial issue. I have been called names. Some business owners got very angry. They said that they make money from these machines and they don't want to lose money. It is not an easy project. It is really hard to do this, but I think it is important and maybe there will be fewer kids thinking that they should kill somebody. I would tell other young people that it was a really good thing to do and if you feel something needs to be changed to make society *safer and better*, you can do it. It is a lot of hard work but it pays off. Don't think just because you are young, people won't listen to you. I discovered that adults *do* respect us as kids.

I strongly feel that young children should not be exposed to these types of games and that if a business wants to have them, they should put them in an area of their business that restricts access by young children to playing them as well as seeing someone else play them.

Added written Testimony of Danielle Shimotakahara, age 12, to the members of the United States Senate Commerce Committee on Science and Transportation on March 21, 2000.

This is a list of some of the commonly found coin operated violent blood splattering video games in public places that I know about.

CarnEvil—Mounted guns and blood and body exploding. The head comes off first when you shoot, then the characters walk around with their heads off and after 5 or so more shots they explode. Many of the characters are covered in blood. It is a two player shooter. CarnEvil is in a movie theater lobby in my hometown. It has an advertisement that says "CarnEvil is more than just the scariest shooter around, it's an awesome cinematic experience . . . the most frighteningly realistic first person shooter ever unleashed on the living." Tort and Rodz are two characters "plucked from the most vile insane asylums . . . their urge to kill is fueled by self-torture-making them almost unstoppable."

Police Trainer has sniper rifles. There is no negotiation, and the police just shoot everybody. There are 2 mounted guns and a scope.

Lethal Enforcers—You leave different kinds of bullet holes in your victims. Female hostages who plead "help me" too often are shot.

The House of the Dead and House of the Dead 2—These are called light gun games. You have a handgun and it is important to do head shots to kill your victim. Bodies lose their limbs, heads and chests and they also can have gaping wounds that you can see through.

Silent Scope has a mounted sniper gun with a scope. You sneak up on people and shoot ordinary people for no reason. When you kill, blood splatters everywhere. You get extra points if you shoot your victims in the head.

Time Crisis and Time Crisis 2—This has a realistic recoil action gun. Guns make sounds like real gun sounds. It is 3D.

Mortal Kombat series, Mortal Kombat Ultimate—This has joysticks. You use your fists and legs and feet. Bodies explode blood when you hit them. Mortal Kombat Ultimate says on the screen—"There is no Knowledge that is not Power." Does that mean that if you know how to kill someone, then you will have power?

Area 51—This one has 2 mounted guns. Bodies explode and blood splatters on the screen. The gunfire sounds realistic.

Steel Gunner 2—This one has mounted guns. Bodies are blown in half, arms fly off, blood splatters and a charred lower body remains on the screen.

Games like Doom, Quake, Blood, Resident Evil, Carmaggedon and Duke Nukem all shoot people to pieces. Eating the corpses of soldiers happens in one software game. Duke Nukem has nearly naked women who ask to be killed. They combine sex and violence. They have people with sexy bodies blowing one another up, and getting power because of it. Men and women in hardly any clothing fight one another.

Carmaggedon, which is also a coin-op game was banned in Brazil, because it caused road rage. You get points for killing pedestrians with your car. A girl wearing a bikini will splatter on the windshield. You can chase an old man who walks with a cane and hunt humans with your car. Pedestrians scream and blood splatters.

My Mom and I were at a pizza place taking notes on these machines when two 8 year boys, that we knew came up to play. My Mom and I had just used Steel Gunner 2 to see what it would do and she said out loud "This one makes bodies explode." The kid said "Cool." My Mom asked him if he really said "cool" and he said "yes." Then she said, "So you think it is cool to blow somebody to pieces and watch the blood splatter everywhere? He got really quiet. Then his mother came rushing around the corner, and said—"No, you are not playing that one." She said that she did not know about these games until my petition and now she is watching for them everywhere. She said that if you turn your back for a minute, they are playing them, and she was ordering a pizza. His mother said she saw a father playing CarnEvil with his young son, that evening in the lobby of the movie theater as they were waiting for a movie to start. Another boy who was maybe 10 came by later, and he didn't have any money. He went to the Steel Gunner 2 and just stood there looking at the screen. He held the gun in his hand for 5 minutes, just watching the screen. I think it must be really hard for parents, because these games are everywhere. I think these kids feel they have power when they hold the guns. I think they get addicted to them, and they want to do it more and more.

I am going to ask city councils to start work on passing ordinances so that these machines will not be seen or used by young children in places where we hang out. Another problem is that the violent games are often right beside basketball or car racing games. When you play a car racing game, and someone plays a violent one beside you, you still see the blood splatter on their screen.

On March 28, I spoke to the North Bend City Council. They gave me an award for the work I am doing to make everyone aware of these machines and for trying to figure out a way to get rid of them in public places.

I asked the mayor and the City Council to help me. I told them about the Entertainment Software Ratings Board. I asked them to figure out a way to enforce those ratings. Area 51 and Ultimate Mortal Kombat are rated M, meaning 17 and up. I don't think anyone should be using these machines, but there must be a way to enforce the present ratings, so at least little kids can't see or play them.

The ESRB does not always rate these games properly, so I think they need to work on that. A software one called DeerAvenger is rated T, which is 13 and up.

The deer hunt humans and use an M–16 to blow hunters to pieces. The assistant manager at my local Wal-Mart said that people and parents keep bringing that one back because there is pornography in it.

I am asking people to start writing letters to their mayors, city councillors, newspapers, and government officials about these violent games and they are doing that. I was the guest speaker at a banquet for Court Appointed Special Advocates for children. They are volunteers that speak in court for abused children. I told them about these games and they were surprised. They wanted to know where they could find them. They gasped when I told them about bodies exploding and blood splattering. Parents and others really don't know but they are learning.

In conclusion,

1. I think the ratings by the ESRB need to be made stricter.
2. Until the ratings are made stricter, I think City Councils need to enforce the present ESRB ratings, because that would at least prevent some kids from playing or seeing some of the violent ones.
3. I think these games are not good or useful for anyone.
4. I think everyone needs to learn and become educated about the harmful effects of these games (machines) on kids.
5. I think people should try one or two of these games or watch somebody else play them to see what they do.
6. I think people should call or write lawmakers, mayors, etc. and express their opinions about these violent blood splattering games/machines.

Senator BROWNBACK. Thank you very much, Danielle, for your testimony, for giving up your spring break to come here, but more importantly, for your heart, for getting out and taking that petition forward. I hope you get 3 million signatures on it. I think it is very possible.

There are a number of Senators on the panel with us. Senator Dorgan has another committee mark-up he has to go to, so I would like to give the floor to Senator Dorgan first, then when we go to questions, we will run the 5-minute clock. Senator Dorgan.

STATEMENT OF HON. BYRON L. DORGAN, U.S. SENATOR FROM NORTH DAKOTA

Senator DORGAN. Mr. Chairman, Thank you very much. I have an Appropriations Subcommittee meeting that started at 10, and I regret that I must go to that at this point, but I wanted to just make a brief comment or two.

First, Senator Brownback, let me thank you for holding this hearing. We have been involved, I guess I have been involved about seven years here in the U.S. Senate in hearings on the subject of television violence, and I have introduced legislation, worked on the V chip and a range of things with Senator Kerry and others, but this is an important issue, the issue you raise about violence. Violence on television—violence on interactive games—is an important issue.

Mrs. Steger, I know the pain of losing a child, and I can barely speak about it, and the strength that you have demonstrated, coming to the Senate and bringing to life the memory of your daughter, and a description of that tragedy, and describing the things you think should be done to avoid tragedies like it in the future is quite remarkable, and I want to thank you for being willing to do that, and to share that story with the U.S. Senate.

Danielle, thank you for coming here from Oregon and taking your time to appear, and thank you for the spunk and the energy you describe, and the efforts you are making.

Dr. Walsh, I appreciate your testimony. Just as with the subject of television violence, in my judgment, there is no question—there is no question at all any longer of whether this kind of excessive violence that is projected to our children affects their behavior. Yes, of course it does. Of course it does.

We had the study of this community in Canada that for some unusual reasons was unable to get television for some time. Almost a couple of decades before, the rest of the surrounding communities had television, and comparing the children in that community with the other communities showed a dramatic difference in aggressive behavior. Why? Because one was subject to a steady diet of violence suggesting that grownups solve their problems by shooting each other, stabbing each other, and hitting each other.

We should be able to entertain adults in our country without hurting our children, and that is the question here. With respect to the excessive violence in television programming, yes, that still exists, with excessive violence in some areas, and also these interactive games.

I have children who—well, let me rephrase it. It is very hard to be a parent and be vigilant all the time, watching what is coming into your living room on that television set, and watching these video games, and so people say, well, this is none of anybody's business except the parents. Well, that is not true at all.

Yes, it is the parents' business first, and there is no substitute for good parenting. That is certainly true, no substitute for good parenting, but it is almost impossible for the best parents in our country to try to create a curtain beyond which this excessive culture of violence is not permeating the lives of our wonderful children.

So again, Senator Brownback, I spoke longer than I intended, but these are important issues. They are issues we cannot and should not ignore. Difficult, yes. Do they involve questions people will relate to with censorship and so on? Yes. These are all difficult questions, but all of us want to protect children in this country. We have the right, it seems to me, to expect that we can protect our children, and we also have the right, as Mrs. Steger said, to hope and believe that when we send our children to school we are sending our children to safe places of learning, not places where someone will come with guns and destroy our childrens' lives.

So let me again thank you for the hearing, and thanks to the witnesses. I apologize that I cannot stay for the entire hearing. I really would like to do that. Mr. Chairman, thank you.

Senator **BROWNBACK**. Thank you, Senator Dorgan. Thank you for your leadership on this topic for a long period of time. I think we are going to start getting into some of the nuts and bolts of what we can do to move this debate forward, and we need to begin that now. I have some questions for the panelists. As I said, we will go through 5 minutes of questions for each of the Members.

Dr. Walsh, I have been very disappointed, as I stated at the outset, that the industry would not come forward and testify. I am curious, have you had direct discussions with the video game industry about these video games, and how did they respond to you about these violent products that they are putting out?

Dr. **WALSH**. Senator, we at the National Institute on Media and the Family have published the annual video and computer game report card each of the last 4 years, and at the conclusion of that report card we always make recommendations as to things that we think could be improved, and that has brought us into fairly regular dialog with the industry.

The industry representatives that I talk to deny that there is any causal link, that there is any harmful effect.

Senator BROWNBACK. Have they studied this? Have they commissioned studies to find that out, or do they just deny it?

Dr. WALSH. Not that I am aware of. When there is, when there is something in print that kind of speaks to their side—for example, there is a theory that some people will sometimes write about and which I like to call the catharsis hypothesis, which basically says that actually these games are helpful, because it helps kids drain off this aggressive energy. It is a theory, but there is absolutely no research to back it up. All of the research in terms of the catharsis hypothesis actually goes in the opposite direction.

And so when people write about those things, they share that information, but in terms of hard research showing there is no effect, one of the difficulties with research is that it is very difficult to get it done. It is very difficult to get it funded. This is very quickly advancing technology. I mean, literally the game processing, or the power of the game processors, is jumping by light years from month to month.

Senator BROWNBACK. You made a statement that we will just around the corner have virtual reality experiences in these games, so that we will be, what, in a surround-sound room?

Dr. WALSH. 3-D. Holographics.

Senator BROWNBACK. We will be able to use chain saws on people with virtual reality?

Dr. WALSH. The stated goal of the industry is virtual reality experience, and technologically they are making wonderful progress and a lot of the good game producers are producing very good games.

Senator BROWNBACK. Will it be likely those virtual reality experiences will involve killing?

Dr. WALSH. Well, if past history is any indication, yes, they will. With the new gaming platforms that are coming out, the Sega Dreamcast which came out last September—if I could just share some numbers to give the Senators an idea, the power of a game is measured in processing polygons per second. The polygon is the little picture element, the pixel that makes up the picture.

If we were meeting this time last year, a Nintendo 64 was kind of the state-of-the-art. It processed 350,000 polygons per second. The Sega Dreamcast came out in September. It processes 3 million polygons per second. Sony Play Station 2, which was released in Tokyo on March 4, processes 66 million polygons per second, and Bill Gates announced 2 weeks ago that the X-box that Microsoft is producing and will release in 2001, processes 150 million polygons per second, so the technical advances are just absolutely staggering.

Senator BROWNBACK. Do we know what the impact would be of a virtual reality killing spree game on a person's——

Dr. WALSH. We can hypothesize. We do not really know, because we are unable to do the research, because it does not exist. What we do know from some of the research, and you are going to hear from some of the best researchers in the country in a couple of minutes, is that these things do have an effect.

Some of the research we have done at the National Institute on Media and the Family, what I think is interesting and important, is that not everybody reacts the same. What we found is that it is kids who are already angry and hostile who get the biggest effect from these games, and they get more angry and hostile. So it seems that one of the things that happens with research is, if you take a look at all kids, that a lot of the effects get masked because different kids have different reactions. As we get more sophisticated, we have to develop the ability to figure out which kids are most likely to be affected.

Senator BROWNBACK. Very interesting.

Mrs. Steger, again, thank you for your testimony, and I know it is a very difficult thing to relive here, as I am sure you relive it many times every day, what you and your family went through. Do you think Michael Carneal's immersion in violent entertainment contributed to his murderous actions?

Mrs. STEGER. Yes. Plain and simple, yes, I do.

Senator BROWNBACK. Why do you say that?

Mrs. STEGER. Based on all of what we have understood, he did spend a lot of time doing that, and he spent—he came from a two-parent home. He did not have any socioeconomic disadvantages. You know, it is like, how do you blame a lot of other things that we want to blame kids. We want to say kids are angry because they are not intelligent, they do not have a good home, they do not have this or that. Well, this killer had all of those things, so it came from some place else.

Senator BROWNBACK. Danielle, you said in your testimony, that parents do not know their kids are playing these games. Is that what you found out as you carried your petition around?

Miss SHIMOTAKAHARA. Yes. Most parents do not know what their kids do when they go into the arcades. They just sit there, give out the quarters, do whatever they want and their kids go off and do whatever.

Senator BROWNBACK. You said in your testimony, too, that when some of these kids come away from playing these games they look really different. Could you describe that for me?

Miss SHIMOTAKAHARA. Well, when they play them they are focused on that. Nothing else matters. Nothing else is happening, just the game. That is all there is, and when they come away from it, sometimes that is all they think about. Like in school, they do not focus on school. They think about going home and playing their game.

Senator BROWNBACK. Are your friends and classmates ever stopped from buying a violent video game?

Miss SHIMOTAKAHARA. Because of my petition?

Senator BROWNBACK. No, when they go to a store to buy a video game, are they ever stopped from buying a violent one?

Miss SHIMOTAKAHARA. I only think they would be if their parents say that they cannot buy that. I think if it was up to them, they would probably buy whatever they could.

Senator BROWNBACK. What is the most popular video games that kids are playing?

Miss SHIMOTAKAHARA. I have seen most people play Area 51. I think that is one of the most popular ones.

Senator BROWNBACK. Do you think violent video games affect the students that you know?

Miss SHIMOTAKAHARA. I think that they do not care when they are playing the games, and there are a lot more wanting to fight. They want to argue. They do not want to just have a nice conversation.

Senator BROWNBACK. Thank you. Senator Kerry, thank you very much for being here today.

Senator KERRY. Well, Mr. Chairman, thank you very much for having this hearing on a topic that is obviously deeply troubling to a lot of people. It has got a lot of question marks out there, but I think common sense sort of dictates to a lot of us what Mrs. Steger has been saying and what Danielle has been saying. Thank you, both of you, for your testimonies. It is terrific to have you here, and I know very difficult for you, Mrs. Steger.

Paducah, as Columbine and others, has sort of become seared in all of our consciousness in this country and, unfortunately there are more lamentations than there are substantive actions that somehow really make a difference, and I think that troubles all of us, which is obviously one of the reasons for this hearing.

Danielle, let me ask you a couple of questions, if I can. Have you played some of these violent games?

Miss SHIMOTAKAHARA. I have not played them for fun, but I have gone into pizza parlors to see what they actually do. I have played them to see, like, first-hand what you have to do, but I have not played them out of fun.

Senator KERRY. And when you say you have not played them for fun, did you have an initial sort of reaction to them, that you just did not like them, or did they disturb you? What was it about these games that made you make this conscious sort of, they are not fun, I do not want to do them for fun?

Miss SHIMOTAKAHARA. Well, I have just found better things to do than play video games so I never really played them before, and I was never really around them, so I never really liked them.

Senator KERRY. Now, would you say that most of your friends who play them, do they play by and large in the pizza parlors and various places where they can find these machines in public, or do they play them more on their own computers privately at home?

Miss SHIMOTAKAHARA. Well, I have some friends who mainly play them in the pizza parlors, and they play some of the games on their computers, but I would say they mainly play them in public areas.

Senator KERRY. Well, it seems to me that that is sort of a key here, which I will mention in a minute.

Dr. Walsh, I was very interested in your testimony, which I read, and I am sorry I was not here, but you draw the conclusion that at-risk teens perform more poorly in school. At-risk teens name more violent games as their three favorite video games. At-risk teens get into arguments with parents, peers, and teachers more frequently than general teens, and among boys only, at-risk boys are less likely to say they usually feel positive after playing video games.

In addition to that, boys are more familiar with video games than girls. Boys play more frequently than girls. Boys are more likely to own their own games than girls. Boys play longer at each sitting than girls, almost double, 84 minutes to 40 minutes. Boys like more violence in their video games than girls. Boys play more each week than girls, 10 hours versus 3 hours. Boys name more violent games as their three favorite games than girls, and boys expose themselves to more video game violence than girls.

If I am correct, no girl has engaged in any shooting or violent act in a school in this country. Am I correct in that?

Dr. Walsh. Not that I am aware of. I am not aware of any.

Senator Kerry. Now, is there something particular about the interactivity that makes a difference?

When I grew up, and when we grew up, we obviously saw a lot of killing on TV, whether it was Hopalong Cassidy, or Treasure Island, or the Road Runner. I mean, there was violence. The Road Runner gets killed. The Road Runner gets back up and he runs again, and you have your next incident, and he usually gets run over, mashed, killed, or something, but we did not relate to it, obviously, in the same way.

This interactivity clearly—and I have played some games—not some of the violent ones like that, but some of the early ones, and it gets you going. It churns you up. You are kind of into it, and clearly for a younger mind to have that level of violence engaging you, I would assume, as a parent and just as a person, it has an impact on you. I mean, I can remember finishing a Pac-Man game and sweating, and there is an intensity to it.

Is it the interactivity that is so different, that really does something to a mind? What is it about that interactivity that then might lead somebody to not have a sense of consequences about their actions, or that distinguishes between the normal sort of violence you see and this particularized kind of violence?

Dr. Walsh. I think you bring up a very important point, Senator. Psychologically, I am in a completely different role when I am playing an interactive game. When I am watching a movie, and that can be engaging as well, as we all know, I am in the role of observer.

When I am playing one of these games, I am in the role of participant, and so the entire psychological position is different, and so it is my actions that are causing the reaction, which makes it much more engaging and, as you said, you experience yourself—and I think many of us have, it is much more engrossing.

Getting kids, when they are playing video games, to kind of pay attention to something else is very difficult, and recent research we did, we asked the kids, is it interfering with your school work, and you will see, I do not remember the exact percentages, but a significant percentage said yes.

We asked kids, have you tried to limit the amount that you play, and the kids say yes. Only a fifth of them are successful in limiting the amount that they play, and so it is a very, very engaging, and depending on the type of the game then, you kind of almost start to take on the mind set, because you are playing it from the point of view of the perpetrator.

Senator KERRY. Well, I am convinced—I mean, I remember when I was a prosecutor in the DA's office, certain kinds of games were not allowed in certain kinds of establishments. These were in adult establishments, and they usually had to do with gambling of one form or another, but nevertheless there was restricted access with respect to certain kinds of games for reasons of public policy, for judgments of morality and so forth.

It seems to me, I mean, I think all of us would be pretty loath to have some kind of grandiose Federal reach here, and needless to say, there were obvious constitutional questions we are all aware of, but I for the life of me do not understand why, given the level of violence we are witnessing, given the correlation that so many studies now have made, what is it that is happening on our city councils, and what is that is happening in the mayors' offices, and what is it that is happening or not happening in chambers of commerce, Lion's Clubs, Elks, and all of these civic institutions of a community that are permitting these kinds of games in a community? They have local ordinance capacity to prevent any of these games from appearing in a public place today.

Dr. WALSH. Senator, one of the barriers we have to overcome with adults is ignorance about the games. I am not talking about ignorant people. I am talking about ignorance about the games. There is a technological barrier. With other forms of media we can share the media, so, for example, my kids watch television, I watch television. My kids watch films, I watch films. My kids play video games. I cannot do it.

The technology is only 30 years old, and so typically, with exceptions, most people over 30 are not adept at the technology, and so they cannot play the games. Therefore, they do not pay as much attention, and they are called games, and so most people assume from that that they are harmless.

The knowledge gap that we have to overcome I think is an educational challenge, and I think my experience is, once people start to find out what is in these games, then they start to take it more seriously.

Senator KERRY. Well, I think, Mr. Chairman, that we should undertake a major effort to educate. I mean, we should be writing and sending to city councils and boards of aldermen and mayors and all of the civic institutions of the communities across this country notice of these studies, and of the level of violence that is at large, and the testimonies of people like Mrs. Steger and Danielle Shimotakahara, and try to have an impact here, because they have the ability to make these determinations.

We do not need some great legislative effort. We need to educate people and make them aware. Now, I wonder if we need more studies? Do we have, sort of, the conclusive link that would allow people to be able to make this nexus that is so critical?

Dr. WALSH. We are really in the early stages of the research, Senator. We do need more studies to be able to really identify the cause and effect and, of course, the technology is changing so quickly. Games kids are playing today have faint resemblance to games they were playing 6 years ago.

Senator KERRY. I will lay odds that the vast majority of parents in this country do not have a clue what virtual killing looks like or feels like. They do not have a clue how real it is and how subversive it could be to a kid who already does not have good communication with the parent, or who already feels alienated, or who already is growing up with all the problems teenagers have.

I mean, you look at what these kids were doing out in Columbine, and they may come from a quote, good home, and they may have two parents, and they may—but there are plenty of kids from good homes and two parents who are not connected to reality or to their parents, or to any of the goodness around them, and it seems to me it is just common sense. We have got to have a little more common sense applied.

Dr. WALSH. Common sense really does work. We have a community education initiative at the National Institute on Media and the Family, and we have a community education program in that we have some video clips of video games. Invariably, when we show parents those clips, you can hear a pin drop when it is finished. Parents are saying, I had no idea. You are absolutely right.

Senator KERRY. Well, Mr. Chairman, my time is up. I would just like to perhaps invite you to work, and maybe we could work on some kind of a significant outreach educational effort that is obviously not legislative, but might have far more impact faster if we were to engage in that.

Senator BROWNBACK. I think that is an excellent suggestion, and it is one that one of the panelists made. Mrs. Steger is making that point, that we need a public relations, we need a public education campaign about what these are all about, and what they are doing to our children, and that those abilities to deal with this do exist at the local level.

Senator KERRY. Can I make one final comment?

Senator BROWNBACK. Please.

Senator KERRY. Danielle made the best point of all, that it is the parents who need to be fired. Now, obviously we do not want to fire them. We want to get them engaged.

But the bottom line here is, Danielle, you have got a parent or two parents who are deeply involved in your life, and they have made a difference, and you are making good judgments. Too many of our kids in this country are going home from school to households that have no parent in them until 6, 7 in the evening, and even then parents come home and they are not involved, and there is no engagement.

So the great task for America is not just to lament, or to sort of focus on the games themselves. It is to focus on the choices that we have in our communities and in our families, and we need to do a better job with after-school programs, with all of the kinds of things that engage kids in something other than 10 hours a week of distraction in front of a screen in violent endeavors, and our education system ought to be doing a hell of a lot better job, frankly, of making sure those choices are available and people are aware of these kinds of things.

It is a big task, and there is no one solution to it, but I really hope we can get serious about it.

Senator BROWNBACK. I do, too. Thank you very much, Senator Kerry.

Dr. Walsh, one final question for you. Who are these games marketed to? Are they marketed to adults, the violent games, or are they marketed to the children?

Dr. WALSH. That is another one of the concerns, and we have identified that in the annual video game report cards. For example, Senator, there are Duke Nukem action figures that kids can buy in toy stores.

Senator BROWNBACK. At what age?

Dr. WALSH. At any age, and of course action figures are attractive to younger kids.

Senator BROWNBACK. It is my contention that the companies are actually marketing all of these games to children. It would be interesting to me to find out from the companies how are they doing their marketing, and how are they devising their marketing strategy.

They will not agree to testify. We know they are using psychological analyses to determine, how do we get these games to move, and move off of the shelf, and yet they will not respond.

Dr. WALSH. We actually have data, documents we have turned over to the Federal Trade Commission, which are actual documents of advertising agencies for a video game producer, their plan to market this game to teenagers, and the game was rated for adults, so we actually have some data, and the Federal Trade Commission now has it. We have given it to them.

Senator BROWNBACK. We need to find out a lot more from these companies.

Thank you very much. It has been an excellent panel, and we thank you for sharing the difficulty and your heart and your hope.

The next panel consists of Dr. Craig Anderson from the Department of Psychology at Iowa State University, Dr. Eugene F. Provenzo, School of Education, University of Miami, and Dr. Jeanne Funk from the Department of Psychology of the University of Toledo.

I might tell the people viewing this, or listening to this testimony, these are all expert witnesses who have studied this issue extensively and are here today to offer their expertise and what they have learned to date. I would also ask the panelists, if you have suggestions or recommendations based upon your studies and your findings, please feel free to share those with us as well.

Dr. Anderson, thank you very much for joining us. The floor is yours.

STATEMENT OF DR. CRAIG A. ANDERSON, PROFESSOR, IOWA STATE UNIVERSITY, DEPARTMENT OF PSYCHOLOGY, AMES, IOWA

Dr. ANDERSON. Thank you, Senator. Distinguished Senators, ladies and gentlemen, my name is Craig Anderson. I am a professor of psychology and chair of the Department of Psychology at Iowa State University. I have studied human behavior now for over 25 years. Much of that time has been devoted to studying human aggression, what we typically call violence.

I am very happy to be here to speak with you today about the problems of exposing young people to interactive violence. In particular, I would like to talk about violent video games. Though there are many complexities in this realm of behavioral research, there is one clear and simple message that parents, educators, and public policymakers such as yourselves need to hear. Playing violent video games can cause increases in aggression and violence.

A second message to take away from my report is also very important. There are good reasons to expect that the effects of exposure to violent video games will be even greater than the well-documented effects of exposure to violent television and movies. I will return to this point a little bit later, but first I want to highlight some facts concerning TV and movie violence.

Fact 1. Exposure to violent TV and movies causes increases in aggression and violence.

Fact 2. These effects are of two kinds, short-term and long-term. The short-term effect is that aggression increases immediately after viewing a violent TV show or a movie. The long-term effect is that repeated exposure to violent TV and movies increases the violence proneness of the person watching such shows.

Fact 3. Both the long-term and the short-term effects occur to both boys and girls.

And Fact 4, the effects of TV and movie violence on aggression are bigger than the effects in the medical field and in other fields that we typically believe are really huge. For instance, the effects of, again, TV and movie violence are bigger than the effect of exposure to lead on IQ scores in children. They are bigger than the effect of calcium intake on bone mass. They are bigger than the effect of homework on academic achievement, and they are bigger than the effect of exposure to asbestos on cancer.

Now, you might ask why I consider TV and movie violence research when we are explicitly talking about interactive violence, in this case, video games. There are several reasons, and I will just hit these real briefly.

First, the psychological processes underlying TV and movie violence are also at work when people play video games, and the second reason is that the research literature on TV violence effects is vast. It is huge. We understand what is going on there, whereas the literature on video game violence is relatively small.

Now, let us consider some facts derived from this relatively small research literature that is specifically focused on video games. Number 1, the amount of time our children and youth spend playing video games continues to increase annually. No big surprise there.

Number 2, young people who play lots of violent video games behave more violently than those who do not.

Number 3, playing a violent video game causes an increase in aggressive thinking, 43 percent more aggressive thinking in one recent study.

And Number 4, playing a violent video game causes an increase in retaliatory aggression, 17 percent more aggression in one recent study.

Now, why does exposure to violent media increase aggression and violence? We do not have nearly enough time for that particular talk, but basically children who are exposed to a lot of violent media learn a number of lessons that change them into more aggressive people.

One way to think about this is to realize that the developing personality is like slowly hardening clay. Various life experiences, including exposure to violent media, are like the hands that shape the clay. Changes in shape are relatively easy to make at first, when the clay is soft, but later on changes become increasingly difficult as the clay hardens.

Earlier, I said that there are good reasons to expect that violent interactive media will have an even stronger effect on subsequent violence and violent TV and movies, and there are at least four different reasons for this. The first one is that identification with the aggressor increases imitation of the aggressor, and video games require stronger identification with violent characters than does watching violent TV or movies.

Second, active participation increases learning. The violent video game player is a much more active participant than is the violent TV show watcher.

Third, rehearsing an entire behavioral sequence is a more effective teaching tool than rehearsing only a part of it. The video game player must choose to aggress and physically enact the aggression in some way, whereas the TV viewer does not make any such choices or take action, so that the video game player really rehearses the entire behavioral sequence, whereas the TV watcher does not.

And reason 4, repetition increases learning. The addictive nature of video games and the frequency with which aggressive choices and actions are required in order to win means that their lessons will be taught repeatedly, much more frequently than in most violent TV shows or movies.

I would also like to comment briefly on just several myths concerning media violence.

Myth 1, violent media have harmful effects only on a very small minority of people who use these media. We hear this myth—we have heard it for 30 years involving TV violence. We are now starting to hear it from the industry involving video game violence. It is simply not true.

It is true that most people who play violent video games do not end up in prison for a violent crime. It is also true most people who smoke do not die of lung cancer. That does not mean that the smokers have not suffered other ill-effects and, similarly, people who play violent video games, even though they may not end up in prison, that does not mean they are not affected.

In fact, large proportions, we do not know exactly how many, are affected. They become more aggressive people. That may involve slapping their kids or spouses, getting in more arguments, and so on. It does not necessarily mean they are actually going to become mass murderers.

A second myth is that violent media allow a person to get rid of violent tendencies in a nonharmful way. This is what Dr. Walsh referred to earlier as the catharsis hypothesis. We have known for over 30 years that that hypothesis is wrong. More recently, it has resurfaced in the media as the venting hypothesis. It is still wrong. In fact, the research quite clearly shows playing violent video games or observing aggressive actions increases aggression. It does not decrease it.

Now, obviously many factors contribute to any particular act of violence and, similarly, many factors contribute to the development of an aggressive personality. More importantly for this hearing, high exposure to media violence is a major contributing cause of the high rate of violence in modern U.S. society. Just as important, there are effective ways of reducing this particular contributing cause. Reducing our children's exposure to media violence could have an important impact.

I thank you for your interest in this issue, and would release the floor to whoever is next.

[The prepared statement of Dr. Anderson follows:]

PREPARED STATEMENT OF DR. CRAIG A. ANDERSON, IOWA STATE UNIVERSITY, DEPARTMENT OF PSYCHOLOGY, AMES, IOWA

Distinguished Senators, ladies, and gentlemen. I am Craig Anderson, Professor of Psychology and Chair of the Department of Psychology at Iowa State University. I have studied human behavior for over 25 years. My first research publication, in 1979, concerned one potential contributing factor in the outbreak of riots. My first publication on video game violence appeared in 1987. Next month, the American Psychological Association will publish a new research article on video games and violence that I wrote with a colleague of mine (Karen Dill). The article will appear in the Journal of Personality and Social Psychology, the premier scientific outlet for research in social and personality phenomena. I recently wrote the "Human Aggression and Violence" articles for both the Encyclopedia of Psychology and the Encyclopedia of Sociology.

I am very happy to be here to speak with you today about the problems of exposing people, especially young people, to interactive violence, that is, violent video games. Though there are many complexities in this realm of behavioral research, there is one clear and simple message that parents, educators, and public policy makers such as yourselves need to hear: Playing violent video games can cause increases in aggression and violence.

A second message to take away from my report is also very important: There are good reasons to expect that the effects of exposure to violent video games on subsequent aggressive behavior will be even greater than the well-documented effects of exposure to violent television and movies. I'll return to this point in a moment.

TV & Movie Violence: Facts & Relevance

But first, I want to highlight some facts concerning TV and movie violence, many of which were reported to a Senate hearing last year by Professor Rowell Huesmann of the University of Michigan.

Fact 1. Exposure to violent TV and movies causes increases in aggression and violence.

Fact 2. These effects are of two kinds: short term and long term. The short term effect is that aggression increases immediately after viewing a violent TV show or movie, and lasts for at least 20 minutes. The long term effect is that repeated exposure to violent TV and movies increases the violence-proneness of the person watching such shows. In essence, children who watch a lot of violent shows become more violent as adults than they would have become had they not been exposed to so much TV and movie violence.

Fact 3. Both the long term and the short term effects occur to both boys and girls.

Fact 4. The effects of TV and movie violence on aggression are not small. Indeed, the media violence effect on aggression is bigger than the effect of exposure to lead on IQ scores in children, the effect of calcium intake on bone mass, the effect of homework on academic achievement, or the effect of asbestos exposure on cancer.

Why consider the TV and movie violence research literature when discussing video game violence? There are three main reasons. First, the psychological processes underlying TV and movie violence effects on aggression are also at work when people play video games. The similarities between exposure to TV violence and exposure to video game violence are so great that ignoring the TV violence literature would be foolish. Second, the research literature on TV violence effects is vast, whereas the research literature on video game violence is small. Researchers have been investigating TV effects for over 40 years, but video games didn't even exist until the 1970s, and extremely violent video games didn't emerge until the early 1990s. Third, because the TV/movie violence research literature is so mature there

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has been ample time to answer early criticisms of the research with additional research designed to address the criticisms. Thus, the various shoot-from-the-hip criticisms and myths created by those with a vested interest in creating and selling various kinds of violent entertainment media have been successfully tested and debunked. I'll describe some of the more popular ones in a few moments.

Video Game Violence: Scope & Research

Now, let's consider facts derived from the relatively small research literature that is specifically focused on video games.

Fact 1. Video games are consuming a larger amount of time every year. Virtually all children now play video games. The average 7th grader is playing electronic games at least 4 hours per week, and about half of those games are violent. Even though the number of hours spent playing video games tends to decline in the high school and college years, a significant portion of students are playing quite a few video games. In 1998, 3.3% of men entering public universities in the United States reported playing video games more than 15 hours per week in their senior year in high school. In 1999, that percentage jumped to a full 4%.

Fact 2. Young people who play lots of violent video games behave more violently than those who do not. For example, in the most recent study of this type exposure to video game violence during late adolescence accounted for 13–22% of the variance in violent behaviors committed by this sample of people. By way of comparison, smoking accounts for about 14% of lung cancer variance.

Fact 3. Experimental studies have shown that playing a violent video game causes an increase in aggressive thinking. For example, in one study young college students were randomly assigned the task of playing a violent video game (Marathon 2) or a nonviolent game (Glider Pro). Later, they were given a list of partially completed words, such as mu____er. They were asked to fill in the blanks as quickly as possible. Some of the partial words could form either an aggressive word (murder) or a nonaggressive word (mutter). Those who had played the violent game generated 43% more aggressive completions than those who had played a nonviolent game.

Fact 4. Experimental studies have shown that playing a violent video game causes an increase in retaliatory aggression. For example, in one study participants were randomly assigned to play either a violent game (Wolfenstein 3D) or a nonviolent game (Myst). Shortly afterwards, they received a series of mild provocations and were given an opportunity to retaliate aggressively. Those who had played the violent game retaliated at a 17% higher rate than those who had played the nonviolent game.

Fact 5. Experimental and correlational studies have shown that playing violent video games leads to a decrease in prosocial (helping) behaviors.

Why Media Violence Increases Aggression & Violence

Why does exposure to violent media increase aggression and violence? There are several different ways in which watching or playing violent media can increase aggression and violence. The most powerful and long lasting involves learning processes. From infancy, humans learn how to perceive, interpret, judge, and respond to events in the physical and social environment. We learn by observing the world around us, and by acting on that world. We learn rules for how the social world works. We learn behavioral scripts and use them to interpret events and actions of others and to guide our own behavioral responses to those events. These various *knowledge structures* develop over time. They are based on the day-to-day observations of and interactions with other people, real (as in the family) and imagined (as in the mass media). Children who are exposed to a lot of violent media learn a number of lessons that change them into more aggressive people. They learn that there are lots of bad people out there who will hurt them. They come to expect others to be mean and nasty. They learn to interpret negative events that occur to them as intentional harm, rather than as an accidental mistake. They learn that the proper way to deal with such harm is to retaliate. Perhaps as importantly, they do not learn nonviolent solutions to interpersonal conflicts.

As these knowledge structures develop over time, they become more complex and difficult to change. In a sense, the developing personality is like slowly-hardening clay. Environmental experiences, including violent media, shape the clay. Changes are relatively easy to make at first, when the clay is soft, but later on changes become increasingly difficult. Longitudinal studies suggest that aggression-related knowledge structures begin to harden around age 8 or 9, and become more perseverant with increasing age.

The result of repeated exposure to violent scripts, regardless of source, can be seen in several different aspects of a person's personality. There is evidence that such exposure increases general feelings of hostility, thoughts about aggression and retaliation, suspicions about the motives of others, and expectations about how others are likely to deal with a potential conflict situation. Repeated exposure to violent media also reduces negative feelings that normally arise when observing someone else get hurt. In other words, people become desensitized to violence. Finally, exposure to violent media teaches people that aggressive retaliation is good and proper.

Violent Video Games vs. TV & Movies

Earlier, I said that there are good reasons to expect that violent interactive media will have an even stronger effect on aggression and violence than traditional forms of media violence such as TV and movies. These several reasons all involve differences between TV and video games that influence learning processes. The following four reasons all have considerable research support behind them, but have not yet been extensively investigated in the video game domain.

Reason 1. Identification with the aggressor increases imitation of the aggressor. In TV shows and movies there may be several characters with which an observer can identify, some of whom may not behave in a violent fashion. In most violent video games, the player must identify with one violent character. In "first person shooters," for instance, the player assumes the identity of the hero or heroine, and then controls that character's actions throughout the game. This commonly includes selection of weapons and target and use of the weapons to wound, maim, or kill the various enemies in the game environment. Common weapons include guns, grenades, chain saws and other cutting tools, cars and tanks, bombs, hands, and knives.

Reason 2. Active participation increases learning. The violent video game player is a much more active participant than is the violent TV show watcher. That alone may increase the effectiveness of the violent story lines in teaching the underlying retaliatory aggression scripts to the game player. Active participation is a more effective teaching tool in part because it requires attention to the material being taught.

Reason 3. Rehearsing an entire behavioral sequence is more effective than rehearsing only a part of it. The aggression script being rehearsed is more complete in a video game than in a TV show or movie. For example, the video game player must choose to aggress, and in essence rehearses this choice process, whereas the TV viewer does not have to make any such choices. Similarly, in video games the player must carry out the violent action, unlike the violent TV viewer. Indeed, in many video games the player physically enacts the same behaviors in the game that would be required to enact it in the real world. Some games involve shooting a realistic electronic gun, for instance. Some virtual reality games involve the participant throwing punches, ducking, and so on. As the computer revolution continues, the "realism" of the video game environment will increase dramatically.

Reason 4. Repetition increases learning. The addictive nature of video games means that their lessons will be taught repeatedly. This is largely a function of the reinforcing properties of the games, including the active and changing images, the accompanying sounds, and the actual awarding of points or extra lives or special effects when a certain level of performance is reached.

Myths

I'd also like to comment briefly on a number of myths concerning media violence. Many of these myths have been around for years. Some come from well-intentioned sources that simply happen to be wrong; others are foisted on our society by those who believe that their profits will be harmed if an informed society (especially parents) begins to shun violent TV shows, movies, and video games.

Myth 1. The TV/movie violence literature is inconclusive. Any scientist in any field of science knows that no single study can definitively answer the complex questions encompassed by a given phenomenon. Even the best of studies have limitations. It's a ridiculously easy task to nitpick at any individual study, which frequently happens whenever scientific studies seem to contradict a personal belief or might have implications about the safety of one's products. The history of the smoking/lung cancer debate is a wonderful example of where such nitpicking successfully delayed widespread dissemination and acceptance of the fact that the product (mainly cigarettes) caused injury and death. The myth that the TV/movie violence literature is inconclusive has been similarly perpetuated by self-serving nitpicking.

Scientific answers to complex questions take years of careful research by numerous scientists interested in the same question. We have to examine the questions from multiple perspectives, using multiple methodologies. About 30 years ago, when questioned about the propriety of calling Fidel Castro a communist, Richard Cardinal Cushing replied, "When I see a bird that walks like a duck and swims like

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a duck and quacks like a duck, I call that bird a duck." When one looks at the whole body research in the TV/movie violence domain, clear answers do emerge. In this domain, it is now quite clear that exposure to violent media significantly increases aggression and violence in both the immediate situation and over time. The TV/movie violence research community has correctly identified their duck.

Myth 2. Violent media have harmful effects only on a very small minority of people who use these media. One version of this myth is commonly generated by parents who allow their children to watch violent movies and play violent games. It generally sounds like this, "My 12 year old son watches violent TV shows, goes to violent movies, and plays violent video games, and he's never killed anyone." Of course, most people who consume high levels of violent media, adults or youth, do not end up in prison for violent crimes. Most smokers do not die of lung cancer, either. The more relevant question is whether many (or most) people become more angry, aggressive, and violent as a result of being exposed to high levels of media violence. Are they more likely to slap a child or spouse when provoked? Are they more likely to drive aggressively, and display "road rage?" Are they more likely to assault co-workers? The answer is a clear yes.

Myth 3. Violent media, especially violent games, allow a person to get rid of violent tendencies in a nonharmful way. This myth has a long history and has at least two labels: the catharsis hypothesis, or venting. The basic idea is that various frustrations and stresses produce an accumulation of violent tendencies or motivations somewhere in the body, and that venting these aggressive inclinations either by observing violent media or by aggressive game playing will somehow lead to a healthy reduction in these pent-up violent tendencies. This idea is that it is not only incorrect, but in fact the opposite actually happens. We've known for over thirty years that behaving aggressively or watching someone else behave aggressively in one context, including in "safe" games of one kind or another, increases subsequent aggression. It does not decrease it.

Myth 4. Laboratory studies of aggression do not measure "real" aggression, and are therefore irrelevant. This myth persists despite the successes of psychological laboratory research in a variety of domains. In the last few years, social psychologists from the University of Southern California and from Iowa State University have carefully examined this claim, using very different methodologies, and have clearly demonstrated it to be nothing more than a myth. Laboratory studies of aggression accurately and validly measure "real" aggression.

Myth 5. The magnitude of violent media effects on aggression and violence is trivially small. This myth is related to Myth 2, which claims that only a few people are influenced by media violence. In fact, as noted earlier the TV violence effect on aggression and violence is larger than many effects that are seen as huge by the medical profession and by society at large. Furthermore, preliminary evidence and well-developed theory suggests that the violent video game effects may be substantially larger.

For Good or Ill

I have focused my remarks on the negative consequences of exposing young people to violent video games, and on the reasons why violent video games are likely to prove more harmful even than violent TV or movies. Although this may be obvious to many, I should also like to note that many of the characteristics that make violent video games such a powerful source of increased aggression and violence in society also can be used to create video games that enhance learning of lessons that are quite valuable to society. This includes traditional academic lessons as well as less traditional but still valuable social lessons.

Caveats

Obviously, many factors contribute to any particular act of violence. There is usually some initial provocation, seen as unjust by one party or the other. This is followed by some sort of retaliatory response, which is in turn interpreted as an unjust provocation. This leads to an escalatory cycle that may end in physical harm to one or both parties. How people respond to initial provocations depends to a great extent on the social situation (most people are less likely to respond aggressively in church than they are in a bar), on their current frame of mind (those who have been thinking aggressive thoughts or who are feeling hostile are more likely to respond aggressively), and on the personality of the individual (habitually aggressive people are more likely to respond aggressively than habitually peaceful people). Short term exposure to media violence influences a person's frame of mind, and long term exposure creates people who are somewhat more aggressive habitually, but many factors contribute to current frame of mind and to habitual aggressiveness. However, even though one cannot reasonably claim that a particular act of violence or that a life-time of violence was caused exclusively by the perpetrator's exposure to violent entertainment media, one can reasonably claim that such exposure was a contributing causal factor. More importantly for this hearing, my research colleagues are correct in claiming that high exposure to media violence is a major contributing cause of the high rate of violence in modern U.S. society. Just as important, there are effective ways of reducing this particular contributing cause. Educating parents and society at large about the dangers of exposure to media violence could have an important impact.

Unknowns

The research literature on video games is sparse. There are numerous questions begging for an answer that is simply not yet available. Just to whet your appetite, here are a few questions I believe need to be addressed by new research.

1. Does explicitly gory violence desensitize video game players more so than less gory violence? If so, does this desensitization increase subsequent aggression? Does it decrease helping behavior?
2. What features increase the game player's identification with an aggressive character in video games?
3. What features, if any, could be added to violent video games to decrease the impact on subsequent aggression by the game player? For instance, does the addition of pain responses by the game victims make players less reluctant to reenact the aggression in later real-world situations, or do such pain responses in the game further desensitize the player to others' pain?
4. Can exciting video games be created that teach and reinforce nonviolent solutions to social conflicts?

Conclusion

Thank you for your interest in this issue. I'd be happy to address your questions at this time.

Senator BROWNBACK. Thank you for your research. You are among the first researchers to talk about causal connection and not just correlation. I want to explore that with you in some questioning.

I think we have next on the panel Dr. Eugene Provenzo. Dr. Provenzo, thank you very much for being here.

STATEMENT OF EUGENE F. PROVENZO, JR., PROFESSOR, SCHOOL OF EDUCATION, UNIVERSITY OF MIAMI

Dr. PROVENZO. Thank you for having me.

Let me say that I am a Professor of Education and my perspective is different than my colleagues here, who are psychologists. I am concerned about the stories we tell our children and how they are constructed in our society. Much of what I will discuss this morning is found in a new book that I am working on entitled, "Children in Hyperreality: The Loss of the Real in Contemporary Childhood and Adolescence."

I am arguing that children and teenagers are spending much of their time in simulations rather than in the real or natural world. This occurs at many different levels: in the video games that are so much a part of the experience of contemporary childhood, in the shopping malls and commercial civic spaces where our children spend so much of their time, in television programs, advertisements and movies, in theme parks where we vacation, in the online chat rooms and discussion programs through which we communicate and exchange information and so on.

I think that this whole issue needs to be put in the context of a larger issue of a loss of the connection to the real world and an increasing movement into a world of simulation. Video games are a very important part of this.

As suggested above, the hyperrealities that increasingly shape and define the experience of childhood and adolescence come in many different shapes and forms. Some are clearly more detrimental than others. Since this hearing focuses on the impact of interactive violence on children, I am going to concentrate on what I consider to be the most disturbing aspect of my research: the increasing romanticization of violence and, more specifically, the frightening power and potential of the new video game technologies.

I would like to argue that films and video games not only teach children about violence, but also how to be violent. When violence is stylized, romanticized, and choreographed, it can be stunningly beautiful and seductive. At the same time, it encourages children and adolescents to assume a rhetorical stance that equates violence with style and personal empowerment. It does matter that we romanticize and stylize violence in films and video games. It does matter that children and adolescents can put themselves into the virtual body of a killer in first-person shooter games.

It matters because a video game or computer game is a teaching machine. Here is where my perspective as an education professor, as a pedagogist, is important. The psychological studies are extremely useful and valuable. But there is a simple logic here. I am an educator, and here is my logic. Highly skilled players learn the lesson of a game through practice. As a result, they learn the lesson of the machine and its software, and thus, they achieve a higher score. They are behaviorally reinforced as they play the game, and thus, they are being taught.

Have you ever considered what it is, or are we considering as a nation, what it is that they are being taught? In this context, we might consider some of the games we have seen displayed here. Games such as Quake, Blood, Doom, or the recently released game Daikatana. These are games that provide the player with a real-view perspective of the game. This is very different from the earlier tradition of video games like Street Fighter II or Mortal Kombat, in which the user viewed small cartoon figures on the screen and then controlled their actions by manipulating them through a game controller.

In contrast, a first-person shooter actually puts you inside the action of the game. The barrels of the weapons, like pistols and shotguns, are placed at the bottom edge of the computer screen. You can look right or left, up and down, by manipulating the computer mouse or game controller. The effect is literally one of stepping into the action of the game as a participant holding the weapon. And as David Walsh has so well developed, the fact that we have these increasingly powerful technologies are making this more and more realistic all of the time.

People like Lieutenant Colonel David Grossman, a former professor of psychology at West Point, argues that first-person shooter video games are “murder simulators which, over time, teach a person how to look another person in the eye and snuff out their life.” Games like Doom are in fact used by the military and police organizations to train people. The Marine Corps, for example, has adopted Doom to train soldiers in the Marine Corps.

In a first-person shooter like Quake, there are no boundaries or limits. The more extreme you are, the more likely you are to win. That is the premise of the game.

Paul Keegan explains that in John Romero's recently released first-person shooter game, Daikatana: "Physical reality suggests that you are sitting in a chair, operating a mouse and a keyboard. But with the computer screen replacing your field of vision, you believe you are actually creeping around a corner, causing your breath to shorten. Afraid an enemy is lying in wait, you feel your pulse quicken. When the monster jumps out, real adrenaline roars through your body. And few things in life are more exhilarating than spinning around and blowing the damn things to kingdom come, the flying gibs, so lifelike, you can feel the wet blood."

Speaking of wet blood, this is my contribution to the advertising material out there. [Professor Provenzo holds up a recent advertisement for the video game Blood.] This is for an extremely violent game, a first-person shooter, called Blood, in which someone literally is sitting in a bath of blood. And this is being advertised and directed, from what I can tell, toward adolescent and child game players.

Now, what is going on here is clearly different than just a game of cowboys and Indians. However, the creators of first-person shooter games just do not understand that there is a problem. John Carmack, the main creator of Quake, for example, considers the game nothing more than playing cowboys and Indians, except with visual effects. In a recent interview, Carmack was reminded that in the past, kids playing cowboys and Indians were not able to blow their brothers' heads off. His response was to laugh and say: "But maybe you wish you could."

Keep in mind this important fact. In first-person shooter games, players are not responsible for what they do. There are no consequences. There are no consequences for other children, for families or society. It is not like when you were playing cowboys and Indians, and if you hit somebody too hard the person you were playing with would protest or be unhappy with you.

As Mark Slouka explains in reference to the CD–ROM video game Night Trap, the game allows its players "to inflict pain without responsibility, without consequences. The punctured flesh will heal at the touch of a button, the screen disappears into cyberspace."

Games that employ first-person shooter models represent a significant step beyond the tiny cartoon figures that were included in Mortal Kombat in the mid-1990's. And again, the whole fact that this is a changing technology, and a rapidly changing technology, is I think something we have to keep an eye on. In fact, there has been a continuous evolution of the realism of these games as computing power has increased and become cheaper.

In many respects, the content of violent video games represents a giant social and educational experiment. Will these ultraviolent games actually teach children to behave and view the world in markedly different ways? To repeat an earlier argument, video games and computer games are in fact highly effective teaching machines. You learn the rules, play the game, get better at it, accumulate a higher score, and eventually you win.

As Mark Slouka argues: "The implications of new technologies like video games are social. The questions they pose are broadly ethical, the risk they entail is unprecedented. They are the cultural equivalent of genetic engineering, except that in this experiment even more than in the other one, we will be the potential new hybrids, the 2-pound mice."

It is very possible that the people killed in the last few years as a result of school shootings may in fact be the first victims or results of this experiment. If this is indeed the case, it is an experiment we need to stop at once. Some things are simply just too dangerous to experiment with.

Thank you very much.

[The prepared statement of Dr. Provenzo follows:]

PREPARED STATEMENT OF EUGENE F. PROVENZO, JR., PROFESSOR, SCHOOL OF EDUCATION, UNIVERSITY OF MIAMI

My comments this morning must be brief. Much of what I will discuss is found in a new book I am working on entitled Children and Hyperreality: The Loss of the Real in Contemporary Childhood and Adolescence. It continues a line of inquiry I began in 1991 with Video Kids: Making Sense of Nintendo,[1] as well as in a number of articles and book chapters.[2] In this work, I am arguing that children and teenagers are spending much of their time in simulations, rather than in the natural or "real" world. It is an argument, which if true, has serious implications for not only our children, but also for the future of our society.

Essentially, I believe that the unreal, the simulation, the simulacra has been substituted for the real in the lives of our children. This occurs at many different levels: in the video games that are so much a part of the experience of contemporary childhood; in the shopping malls and "commercial civic spaces" where our children spend so much of their time; in television programs, advertisements and movies; in the theme parks where we vacation; in the online chat rooms and discussion programs through which we communicate and exchange information; and finally, in the images of beauty and sexuality that run as a powerful undercurrent through much of our culture and the lives of our children.

As suggested above, the hyperrealities that increasingly shape and define the experience of childhood and adolescence come in many different shapes and forms. Some are clearly more detrimental than others.

Since this hearing focuses on "The Impact of Interactive Violence on Children," I will concentrate on what I consider to be the most disturbing aspect of my research—the increasing "romanticization" of violence—and more specifically, the frightening power and potential of the new video game technologies.

Let me begin by reflecting a bit on the information included on the recently released videotapes made by Eric Harris and Dylan Klebold shortly before the Columbine High School shootings last year.

It is very clear that Harris and Klebold wanted to tell the world a story whose script they seem to have learned through the entertainment media—particularly from ultra-violent films and video games. Harris tells his story in front of a video camera with a bottle of Jack Daniels and a sawed-off shotgun cradled in his lap. He calls the gun Arlene, after a favorite character in the Doom video game.

Harris and Klebold saw themselves as important media figures, whose story would be worthy of a filmmaker like Steven Spielberg or Quentin Tarintino. The fact that Harris and Klebold created these videotapes reminds me of the Mickey and Mallory characters in Oliver Stone's film Natural Born Killers who became media stars as a result of a murderous rampage across the country. It is no accident that the film was a favorite of Harris and Klebold.

I would like to argue that films and video games not only teach children about violence, but also how to be violent. When violence is stylized, romanticized and

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[1] Eugene F. Provenzo, Jr., Video Kids: Making Sense of Nintendo (Cambridge: Harvard University Press, 1991).

[2] See: Eugene F. Provenzo, Jr., "'Brave New Video': Video Games and the Emergence of Interactive Television for Children," Taboo: The Journal of Culture and Education, Vol. 1, #1, Spring 1995, pp. 151–162; and Eugene F. Provenzo, Jr., "Video Games and the Emergence of Interactive Media for Children," in Shirley R. Steinberg and Joe L. Kincheloe Kinderculture: The Corporate Construction of Childhood (Denver, Colorado: Westview Press, 1997), pp. 103–113.

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choreographed, it can be stunningly beautiful and seductive. At the same time, it encourages children and adolescents to assume a rhetorical stance that equates violence with style and personal empowerment.

It does matter that we romanticize and stylize violence in films and video games.

It does matter that children and adolescents can put themselves into the virtual body of a killer in first-person shooter games.

It matters because a computer or video game is a teaching machine. Here is the logic: highly skilled players learn the lesson of game through practice. As a result, they learn the lesson of the machine and its software—and thus achieve a higher score. They are behaviorally reinforced as they play the game and thus they are being taught. Have you ever considered what it is they are being taught?

Consider first-person shooter games such as Quake, Blood, Doom or the recently released Daikatana. These are games that provide the player with a real view perspective of the game. This is very different from the earlier tradition of video games like Street Fighter II or Mortal Kombat, in which the user viewed small, cartoon figures on the screen and then controlled their actions by manipulating them through a game controller. In contrast, a first-person shooter actually puts you inside the action of the game. The barrels of weapons like pistols and shotguns are placed at the bottom center edge of the computer screen. You can look right or left, up or down, by manipulating the computer mouse or game controller. The effect is one of literally stepping into the action of the game as a participant holding the weapon.

Lieutentant Colonel David Grossman, a former Professor of Psychology at West Point, argues that first person shooter video games "are murder simulators which over time, teach a person how to look another person in the eye and snuff their life out."[3]

Games like Doom are, in fact, used by military and police organizations to train people. The Marine Corps, for example, has adapted Doom to train soldiers in the Corps.

Some critics claim that there is little difference between what goes on in a first-person shooter and playing a game of Paintball, where players divide up on teams and hunt each other in a wood or elaborately constructed game room. To begin with, Paintball is acting that takes place in the real world. You run around a little, get tired and winded, bumped and scrapped. There are serious consequences for getting out of control as you play—in other words—the fact that the game is physical and tangible means that it has limits. These limits not only include your own endurance, but the rules and procedures followed by your fellow players.

In a first-person shooter like Quake there are no boundaries or limits. The more "extreme" you are (a terminology often used in describing the action of the games), the more likely you are to win. Paul Keegan explains that in John Romero's recently released first-person shooter game Daikatana:

> Physical reality suggests that you are sitting in a chair operating a mouse and a keyboard. But with the computer screen replacing your field of vision, you believe you're actually creeping around a corner, causing your breath to shorten. Afraid an enemy is lying in wait, you feel your pulse quicken. When the monster jumps out, real adrenaline roars through your body. And few things in life are more exhilarating than spinning around and blowing the damn things to kingdom come, the flying gibs so lifelike you can almost feel wet blood.[4]

What is going on here is clearly different than just a game of Paintball or "Cowboys and Indians." However, the creators of first-person shooters just don't understand that there is a problem. John Carmack, the main creator of Quake, for example, considers the game nothing more than "playing Cowboys and Indians, except with visual effects."[5] In a recent interview, Carmack was reminded that in the past kids playing Cowboys and Indians weren't able to blow their brothers' heads off. His response was to laugh and say: "But you wished you could."[6]

Keep in mind this important fact: in first-person shooter games, players are not responsible for what they do. There are no consequences for other children, for families, or for society. As Mark Slouka explains in reference to the CD-ROM video game Night Trap, the game allows its players: "To inflict pain. Without responsibility. Without consequences. The punctured flesh will heal at the touch of a button, the scream disappear into cyberspace."[7]

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[3] Claymon, Deborah, "Video-game industry seeks to deflect blame for violence," Miami Herald, July 2, 1999, 3E.

[4] Paul Keegan, "A Game Boy In the Cross Hairs," The New York Times Magazine, May 23, 1999, p. 38.

[5] Ibid, p. 39.

[6] Ibid.

Games that employ a first-person shooter model represent a significant step beyond the tiny cartoon figures that were included in Mortal Kombat in the mid-1990s. In fact, there has been a continuous evolution of the realism of these games as computing power has increased and become cheaper.

Much of this has to do with the enormous increase in computing power. A moderately fast desktop computer with a Pentium II chip that could be purchased for under $1,000 today has the speed of a $20 million Cray supercomputer from the mid-1980s.[8]

Even more interesting is the availability of inexpensive game consoles. Sony's dominance of this market has recently been challenged by Sega's amazing 200 Mhz Dreamcast game machine—available for nearly a year now in North America. It will soon be superseded by Microsoft's X-Box, which is designed specifically for interactive gaming, and which is set for release in the fall of 2001. The X-Box will be driven by a 600 Mhz Intel Pentium III chip. It will cost less than $500 and will allow players to go online to play games. The machine and the programs that will drive it represent what is potentially an extraordinary virtual reality simulator.

Larry Smarr, director of the National Center for Supercomputer Applications in Champaign-Urbana, Illinois, believes that systems like these represent "the transition from people playing video games to a world where we will create our own fantasies in cyberspace."[9]

In many respects, the content of violent video games represents a giant social and educational experiment. Will these ultra violent games actually teach children to behave and view the world in markedly different ways? To repeat an earlier argument, video and computer games are, in fact, highly effective teaching machines. You learn the rules, play the game, get better at it, accumulate a higher score, and eventually win. As Mark Slouka argues, the implications of new technologies like video games "are social: the questions they pose, broadly ethical; the risks they entail, unprecedented. They are the cultural equivalent of genetic engineering, except that in this experiment, even more than the other one, we will be the potential new hybrids, the two-pound mice."[10]

It is very possible, that the people killed in the last few years as the result of "school shootings" may in fact be the first victims/results of this experiment. If this is indeed the case, it is an experiment we need to stop at once. Some things are too dangerous to experiment with.

Senator BROWNBACK. Thank you. That was powerful testimony. I look forward to exploring some more of it with some questions.

Dr. Jeanne Funk of the University of Toledo, Department of Psychology, thank you very much for joining us today.

STATEMENT OF DR. JEANNE B. FUNK, PH.D., DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF TOLEDO

Dr. FUNK. Thank you, Mr. Chairman.

I will address three issues: the general status of research; my own work on violent electronic games; and my views about our most pressing research needs. The obvious question before us is whether exposure to interactive violence causes violent behavior in particular individuals. I would like to be able to answer that question for you, but the reality is there is not yet a sufficient body of scientific research to make a prediction about any individuals.

Having said that, I must also acknowledge that there is an emerging body of research displayed by my colleagues which does identify primarily negative relationships and effects. I am a clinical child psychologist. And as such, my interest is in what may cause individual, behavioral, and emotional problems. Not every child who comes into contact with interactive violence ends up behaving in an obviously violent manner. In fact, most do not. My research goal is to identify which, if any, children are at risk specifically for negative impact.

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[7] Mark Slouka, The War of the Worlds: Cyberspace and the High-Tech Assault on Reality (New York: Basic Books, 1995), p. 13.

[8] David E. Sanger, "High-Tech Exports Hit Antiquated Speed Bumps, The New York Times, June 13, 1999, WK 5.

[9] John Markoff, "Silicon Valley's Awesome Look at New Sony Toy," The New York Times, March 19, 1999, p. C1.

[10] Ibid.

I began my research several years ago. In 1990, Nintendo's success brought video games to national attention. And shortly thereafter, I noticed a striking resemblance between the video displays used in aircraft during the Persian Gulf War and some popular video games. This recognition collided with my 4-year-old son's demand for a Nintendo system.

As a scientist, I reviewed the existing research before providing this technology to my child. I found that the few studies which had been done focused on the relatively benign games of the seventies and eighties, and defined violence from the adult experimenter's perspective. So I began my research by developing a category system based on children's perceptions.

With my colleague, Dr. Deborah Buchman, and my research team, I have surveyed over 1,000 children to identify possible risk features. We found associations between a preference for violent games and lower self-evaluations of academics, social acceptance, and behavior in fourth through eighth graders. I would like to emphasize that this particular approach cannot determine causal relationships. But these findings do suggest that a strong preference for violent games may at least be an indicator of adjustment issues.

Further, it seems unlikely that playing violent electronic games will improve children's negative self-evaluations. I am concerned that parents lack information about their children's exposure to interactive violence. In a comparison study, parents reported significantly higher estimates of supervision than their children. And this is similar to what Danielle reported from the other direction.

Most of the parents either named an incorrect game or were not able to even guess their child's favorite game. And in 70 percent of these incorrect matches, the child's favorite game was violent. We do have commercial ratings developed to help parents. I compared the commercial ratings with consumer perceptions of game content. For games with cartoon-type violence, consumers did not agree with the rating system. In most cases, the commercial ratings did not recommend restricting access for younger consumers.

I will close with some specific recommendations. First, it is essential that we increase the scientific knowledge base. Public policy must be informed by data, not by our emotional reactions to even horribly tragic events. Dramatic advances in the realism of interactive violence intensify the need for major research initiatives. As Dr. Walsh noted, the technology now exists to personalize the visual image of game characters.

This is a complex topic, and we must amass enough information to identify a convergence of findings. We need programmatic research which examines both the immediate and long-term effects of interactive violence. There are research techniques which can determine causal relationships, but such research requires a major funding commitment. Hopefully there will soon be an opportunity for Congress to make such a commitment. I am referring to the Multi-Agency Information Technology Research Initiative. Funds would go to the National Science Foundation, the Initiative's lead agency.

I would like to recommend that research on technology's impact on children, both the positive and the negative, be a major focus, and that the issue of interactive violence be given special attention. Finally, I would like to emphasize that there is an urgent need to answer the following questions:

How does interactive violence affect a child's behavioral, social, emotional, and cognitive development? Are interactive media more potent than other media in teaching aggressive behavior? And does interactive violence influence perceptions of reality or promote detachment from reality?

If we do not address these issues, violence may become an even more serious social problem. I thank you for the opportunity to bring these issues to your attention.

[The prepared statement of Dr. Funk follows:]

PREPARED STATEMENT OF DR. JEANNE B. FUNK, PH.D., DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF TOLEDO

Thank you, Mr. Chairman and members of the Committee, for the opportunity to speak with you about research on children and interactive violence. I would like to address three issues: the general status of research, my own work on violent video and computer games, and finally my views about our most pressing research needs. I would like to acknowledge that my research has been informed by the work of many other investigators, although I will not specifically address each relevant study.

The obvious question before us is whether exposure to interactive violence causes violent behavior. I would like to be able to answer that question for you, but the reality is that there is not yet a sufficient body of scientific research to make a definitive statement. Having said that, I must also note that there is an emerging body of research which does identify primarily negative relationships and effects. Early studies suggested that playing violent video games increases aggressive behavior in younger children, while the results of studies with older children have been equivocal. Dr. Craig Anderson's recent studies provide evidence that interactive violence affects the cognitions and behavior of young adults, and I am currently examining this question with adolescents. However, much more work is needed.

I am a clinical child psychologist. As such, my interest is in what may cause behavioral and emotional problems for individuals. Not every child who comes into contact with interactive violence ends up behaving in an obviously violent manner. In fact, most do not. My research goal is to identify which, if any, children are at risk for negative impact as a result of playing violent video and computer games.

My research program began several years ago. In 1990, Nintendo's success brought video games to national attention. Shortly thereafter, I noticed a striking resemblance between the video displays used in aircraft during the Persian Gulf War and some popular video games. This recognition collided with my four year old son's demand for a Nintendo system.

As a scientist, I reviewed the existing research before providing this technology to my four year old. I found that the few studies which had been done focused on the relatively benign games of the 70s and 80s, defining violent games from the adult experimenter's perspective (Funk, 1992). Therefore, I began my program of research by developing a category system based on children's perceptions (Funk, 1993).

Development of Categories to Examine Game Preference

To develop the category system I first asked 357 seventh and eighth graders to list up to three favorite video or computer games. The 211 games listed by the initial study group were reviewed, and five general categories based on children's perceptions of the primary action and main goal were defined by me and a college student assistant with the help of 12 children outside the primary study group. Each favorite game was then categorized, again with the help of the 12 outside children. Next, the category definitions and the list of "favorite" games with associated categories were given to a group of 38 raters from the original study group who identified themselves as regular game players. These students were asked to indicate whether they agreed or disagreed with the category assigned to each familiar game. The mean rate of agreement with the category assignment was 94% (Funk, 1993).

Subsequently, the system was revised to separate violent and nonviolent sports (Funk & Buchman, 1995), and now consists of the following categories:

Revised Electronic Game Categories with Descriptions

Category	Description
General Entertainment	The main action is a story or game with no fighting or destruction.
Educational	The main action involves learning new information or figuring out new ways to use information.
Fantasy Violence	The main action is a story where a cartoon character must fight or destroy things and avoid being killed or destroyed while trying to reach a goal, rescue someone, or escape from something.
Human Violence	The main action is a story where a human character must fight or destroy things and avoid being killed or destroyed while trying to reach a goal, rescue someone, or escape from something.
Nonviolent Sports	The main action is sports without fighting or destruction.
Sports Violence	The main action is sports *with* fighting or destruction.

Surveying Time Spent and Game Preference

The electronic game-playing habits of approximately 1000 fourth through eighth graders have been surveyed using the categories and definitions described above (Buchman & Funk, 1996). On average, boys spend more hours each week playing electronic games than girls across all grade levels. Average playing time generally decreases for both boys and girls as grade level increases.

Average Hours Reported Playing Electronic Games in a Typical Week by Gender, Location and Grade

	Fourth	Fifth	Sixth	Seventh	Eighth
Girls					
Home	4.50	3.14	2.60	1.92	2.07
Arcade	1.18	.82	.58	.33	.45
Total	5.67	3.96	3.18	2.25	2.52
Boys					
Home	7.14	6.12	5.40	4.87	3.89
Arcade	2.30	2.10	1.49	1.41	1.12
Total	9.44	8.23	6.89	6.15	4.97

Regarding favorite games, we found that children of all ages prefer games with violent content. Girls tend to prefer fantasy or cartoon-style violence, while boys prefer more realistic or human violence.

Percentage of Favorite Games in Each Category by Gender and Grade

	Fourth		Fifth		Sixth		Seventh		Eighth	
	Girl *n*=289	Boy *n*=241	Girl *n*=197	Boy *n*=187	Girl *n*=157	Boy *n*=169	Girl *n*=126	Boy *n*=177	Girl *n*=166	Boy *n*=183
General Entertainment	14.0	6.3	16.8	5.9	16.0	8.9	33.3	7.3	28.9	14.2
Educational	17.6	2.9	24.4	4.3	8.3	3.6	1.6	0.0	5.4	.5
Fantasy Violence	32.7	27.5	30.5	26.2	44.6	24.9	43.7	24.9	44.6	19.1
Human Violence	11.5	25.0	10.2	26.2	16.0	26.0	7.1	29.4	7.2	20.8
Nonviolent Sports	9.3	17.9	12.7	19.8	10.5	20.1	4.3[a]	38.4	13.9	45.4
Sports Violence	14.7	20.4	5.6	17.6	5.7	16.6				

Note. n refers to number of games listed.

[a] When seventh and eighth graders were surveyed, there was only one Sports category.

The Importance of Violent Content

Several researchers have recently noted the importance of specifically examining behavioral and emotional characteristics associated with playing violent electronic games (Calvert, 1999; Dill & Dill, 1998; Funk, 1993). Such play could be linked to negative behaviors and emotions via various social-cognitive mechanisms: In violent electronic games "justified" aggression is demonstrated, practiced, and reinforced (Funk & Buchman, 1996). Violence is presented as entertainment with no truly negative consequences. Players are rewarded for choosing the pre-programmed violent actions, with little attention given to any other conflict resolution alternatives.

From one theoretical perspective, playing violent electronic games could develop and prime aggressive thought networks (Anderson & Dill, in press; Berkowitz, 1993). Under certain environmental conditions, aggressive behaviors would be more likely to be chosen subsequent to desensitization and disinhibition. In addition, the repetitive nature of playing violent electronic games may contribute to the development of aggressive behavioral scripts (Guerra, Huesmann, & Hanish, 1995; Huesmann, 1988). Once a script has been established through observational learning and enactment, retention of the script will be strengthened through fantasy rehearsal (Guerra, Huesmann, & Hanish, 1995). Anderson (1997) notes that repetition is a key to change in the long term structure of thought and affect. In addition to providing the opportunity for the development and rehearsal of aggressive responses, exposure to interactive violence would also seem likely to decrease the relative valence of prosocial behaviors.

Playing Violent Electronic Games and Self-Concept

To identify those children who may be negatively impacted by interactive violence, I began to examine possible "high risk" game-playing habits. With my colleague, Dr. Debra Buchman, and my research team, I have surveyed over 1,000 children.

Because it reflects core attitudes and coping abilities, self-concept was chosen as a target variable to examine relationships between electronic games and adjustment. Susan Harter's multidimensional, developmentally-based measure was used to examine links among self-concept, time commitment, and a preference for violent electronic games (Funk & Buchman, 1996). Using Harter's framework, game-playing could theoretically have positive or negative relationships with aspects of self-concept. If game-playing supports self-esteem and does not impede the development of other key abilities, a positive relationship would be found. However, if game-playing contributes to lower competence in key areas, the relationship may be negative. Alternately, significant correlations may simply reflect a common etiology such as preexisting adjustment status.

In a group of 357 seventh and eighth graders (183 girls), a small but significant negative association was identified for girls between time spent playing video or computer games and perceptions of academic competence, behavioral conduct, social acceptance, athletic competence, and self-esteem. The one exception to the pattern of negative relationships occurred on the scale with the lowest reliability (Job Competence), and was thought to be related to the suitability of the questions for seventh and eighth graders. No significant associations were found for seventh and eighth grade boys (Funk & Buchman, 1996).

In a group of 179 sixth graders (98 girls), for boys, a stronger preference for violent games was associated with lower perceived self-competence in academic competence, social acceptance, and behavior. No significant associations were identified for sixth grade girls.

In a group of 364 fourth and fifth graders (203 girls), a stronger preference for violent games was associated with lower self-perceptions of behavioral conduct for both boys and girls (Funk, Buchman, & Germann, 1999).

I would like to emphasize that this research approach cannot determine causal relationships. However, finding only negative associations suggests that a strong preference for violent games may at least be an indicator of adjustment issues for some children. Further, it seems unlikely that playing violent electronic games will improve negative self-perceptions in key developmental areas.

Parent and Child Perceptions of Children's Game-Playing

I have been concerned that parents lack information about their children's exposure to interactive violence. I examined this question by comparing children's and parents' perceptions of the child's playing time, parental supervision, and the child's favorite electronic games. In paired comparisons, parents reported significantly higher estimates of supervision time than their third through fifth grade children (total *n* = 70; 35 children). Most parents either named an incorrect game or were not able to even guess their child's favorite game. In 70% of these incorrect matches, children described their favorite game as being violent. This suggests that parents may underestimate their child's exposure to violence in electronic games (Funk, Hagan, & Schimming, 1999).

Electronic Game Ratings and Consumer Perceptions

In the early 1990s, public concern about violence in electronic games led to the creation of ratings systems. A comparison of commercial ratings for popular electronic games with consumer perceptions of game content was performed with the help of 201 fourth graders, 145 college students, and 37 parents. For games with obviously non-violent or very violent content, there was agreement between consumers and the commercial system. However, there was considerable disagreement about notable violent content in games with cartoon-type violence. Despite the high level of agreement among consumers regarding the presence of fantasy violent content, in most cases the commercial ratings were unlikely to recommend restricting access for younger consumers (Funk, Flores, Buchman, & Germann, 1999).

Preference for Violent Electronic Games and Psychopathology

It has been asserted that exposure to media violence is associated with an increase in aggressive behavior. This association is being examined in a small group (*N* = 32) of adolescents, including 12 from a school for children with behavioral problems. The hypothesis being examined is that a preference for violent games will be associated with more behavioral problems, particularly externalizing problems such as aggressive behavior.

Desensitization, Empathy, and Attitudes Towards Violence

Desensitization has been proposed as a primary mechanism by which exposure to media violence may influence behavior. However, this conceptualization has not yet been empirically examined. To begin to understand desensitization as a result of exposure to electronic game violence, a study was designed to examine associations among preference for violent electronic games, empathy, and attitudes towards violence. A background questionnaire requesting information about game-playing habits, Bryant's Index of Empathy for Children (Bryant, 1982) and the Attitudes Towards Violence Scale (Funk, Elliott, et al., 1999) were administered to 52 sixth graders. Evaluation of these data is ongoing.

Another ongoing study is examining differences in empathic and aggressive responses as these are related to playing a violent or nonviolent electronic game. Following play, children are asked to describe the likely sequence of events in response to descriptions of common situations children may encounter. Pictures are provided to help the children better understand the vignette. Half of the vignettes were structured so that an empathic response was one reasonable response. In the other half, an aggressive response was one possible outcome. Children's responses are coded by independent raters. This work is ongoing with elementary school age children and kindergarteners.

Recommendations

I will close with some specific recommendations. First, it is essential that we increase the scientific knowledge base. Public policy must be informed by data, not by our emotional reactions to even horribly tragic events. Dramatic advances in the realism of interactive violence intensify the need for major research initiatives. For example, technology now exists to personalize the visual image of game characters. But gaming is not the only way in which children are exposed to interactive violence. Opportunities abound in chat rooms, in MUDs, and on the Web. We have little scientific basis to even guess what the impact of these experiences may be.

Research on the impact of interactive violence on children must be integrated into a developmental research framework. Researchers with relevant interests and expertise are spread across many different disciplines (e.g., education, communication, psychology, sociology). Moreover, proprietary and market-driven research, used for the purpose of designing interactive media products for children, is not integrated into an overall understanding of how children use or are influenced by interactive media. To adequately examine the impact of interactive violence on children we must develop a multidisciplinary research infrastructure. This will allow us to investigate the broad issues and to understand the tremendous potential of interactive media as well as the dangers.

The impact of interactive violence is a complex topic, and we must amass enough information to identify a convergence of findings. We need programmatic research which examines both the immediate and long term effects of interactive violence. There are research techniques which can determine causal relationships, but these studies require large groups of children and long-term followup. Such research requires a major funding commitment.

Hopefully there will soon be an opportunity for Congress to make a specific funding commitment. I am referring to the multi-agency Information Technology Research Initiative. Funds would go to the National Science Foundation, which is the Initiative's lead agency. I would like to recommend that research on technology's impact on children, both the positive and the negative influence, be a major focus of this Initiative, and that the issue of interactive violence be given special attention.

Finally, I would like to emphasize that there is an urgent need to answer the following questions:

- How does interactive violence affect a child's behavioral, social-emotional, and cognitive development?
- Are interactive media more potent than other media in teaching aggressive behavior?
- Does interactive violence influence information processing and perceptions of reality?
- Does interactive violence promote detachment from reality?
- In what ways can parents counter the influence of interactive violence?

If we do not address these issues, violence may become an even more serious social problem. I thank you for the opportunity to bring these issues to your attention.

Mr. Chairman, I would be pleased to respond to questions.

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Senator **BROWNBACK**. Thank you for the testimony and for your thoughts. I do not know many parents that go to quite the extreme that you did. I wished more did.

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I want to explore some of this with you, particularly. Dr. Anderson, you speak of a direct causal link and even state that this is a closer causation than even smoking and lung cancer in its impact. I want to explore that with you.

Is this based on your review of the research? Is it on your research that you are tying in that causal link?

Dr. ANDERSON. The causal link, specifically focusing on violent video games, comes from fairly recent research, much of which currently is unpublished. Some of it will be published next month. Some of it I have not gotten written up yet. I am a new chair of the Department of Psychology, and so I go to a lot of meetings and write a lot of memos. But I have been working on that research. So, in fact, the causal statements that I am making are, to a great extent, based on research that is so new that the other panel members have not seen it or have just seen very brief summaries of it.

But it is also based on a review of the few other studies, the few other experiments that have been done over the last 15 or 20 years. The vast majority of those studies—there are a number of them done with kids—school age, elementary, junior high, and high school kids—and the majority of those studies do find that kids who have been randomly assigned to play a violent video game later behaved more aggressively than kids who have been randomly assigned to play a nonviolent game.

Now, it is true that not all the studies find exactly the same thing. And that is true if you look at the thousands of studies done on television violence. It is also true in any large area of research in any science, including medical research. So what you really have to do in order to come to a firm conclusion is look at the whole body of research.

If I remember my history right, Richard Cardinal Cushing once said, when asked why he was calling Fidel Castro a communist: When I see a bird that looks like a duck and walks like a duck and quacks like a duck, I call that bird a duck. The point being you take several different perspectives on the same issue, if you start to get the same answer, even though each particular piece of evidence by itself is not totally conclusive, eventually the overall picture does become conclusive.

Senator BROWNBACK. Dr. Funk, I want to get you into this question as well, because you say we need to look at this longer. But you suggest that the desire to play violent video games is actually an indicator to watch for in our children as leading toward something else that is of a negative nature and behavior. So you do not necessarily dispute Dr. Anderson, you are saying it also takes you down a wrong path. But you would view it as something to watch for in children, to show a correlation by other negative behavior. Is that correct, from what your perspective is?

Dr. FUNK. Well, I think that is correct, based on some of the studies that I have done. And I certainly do not disagree with Dr. Anderson, that there is a body of research coming together that suggests there is a negative causal effect. I feel that we are not there yet and that we need to carefully gather more evidence before I would be comfortable saying, yes, for certain individuals, there is a causal effect.

Senator BROWNBACK. But you have no problem saying there is a correlation?

Dr. FUNK. Oh, absolutely, there is definitely a correlation. But it may be that troubled children are drawn to violent video games rather than the violent video games causing the children to be troubled. However, I would also say that the violent video game playing is not going to make them less troubled.

Senator BROWNBACK. You would not have any problem with the thought that if you are playing these violent video games, it does have a stimulating effect on the person that is playing them and a stimulating effect that is generally more aggressive?

Dr. FUNK. I think there is an arousal effect. One of the areas that I would like to look at is whether there is also a detachment effect and an altered state of consciousness in which they may even be more prone to learning, as Dr. Provenzo suggested. So I think we need to look at that.

You heard Danielle talk about her friends having glazed eyes after spending time playing violent video games. I think that needs to be looked at.

Senator BROWNBACK. And, Professor Provenzo, your point is about this detachment effect, if I am understanding your testimony correct, that people are getting separated from reality. In fact, even some of the games suggest that they blur the line between reality and fantasy. And it stays with you, I think one of them even brags in their advertisement on it.

Dr. PROVENZO. Absolutely.

Senator BROWNBACK. That is what you truly fear; is that correct?

Dr. PROVENZO. Yes. I think that the culture of simulation, which is becoming very prevalent because of media, including video games, which are one form of media, are creating a situation where it is very easy to step into these alternative realities and live very heavily in them, and then to emerge into a real world, and then have one's behavior based on what one was experiencing in the virtual world. And it operates in lots of ways.

I think also what it is doing, which is something we can point to more directly and a little more easily, is scripting people. We tell stories in our culture. And one of the stories we are increasingly telling children about and adolescents about is violence and that violence is not really dangerous, but it is just something that is highly romantic, it is hyperreal. So you get this sort of thing that you have in a movie like Natural Born Killers, where violence is extraordinarily romanticized, the main characters become media figures.

What then happens, in turn, is you get individuals like Harris and Klebold, who, in their tape prior to going out and being involved in the shootings at Columbine, talk about the fact that they are going to have their story told as a movie and it is going to be perhaps produced or directed by people like Spielberg or Tarantino. And I think that is very frightening.

So what we are doing is we are giving scripts to kids that are highly realistic, but, in point of fact, are not about a real world; they are about a hyperreality.

Senator BROWNBACK. Is there an analogy here between when we used to stylize and romanticize smoking in entertainment and violence now?

Dr. PROVENZO. I think it is very similar. I think it is sold in some of the same ways. This is a romanticization of violence clearly. It is hyperreal.

Senator BROWNBACK. You have got a bathtub full of blood and a guy holding a gun.

Dr. PROVENZO. Right. And it is for a game called Blood, Blood II.

Senator BROWNBACK. And what was the caption beside it, do you recall?

Dr. PROVENZO. It just says "Blood?" That is the only thing that is on the ad. But to kids, this is a very popular game. The kids know what it is immediately.

Senator BROWNBACK. So it stimulates a positive response?

Dr. PROVENZO. A romanticized response, a notion that violence is a style statement. It is something that is cool. I think that is the issue about a film like the Matrix, which, as a science fiction fan and as an adult, I think is an extremely interesting film and well done in many regards. It also has some very disturbing elements in terms of the romanticization of violence. And I think kids watching that type of film, I think there are real problems, particularly kids who have a tendency toward problems, as Jeanne was indicating.

Senator BROWNBACK. And children, do not they, Dr. Anderson or anybody on the panel, have difficulty recognizing between reality and fiction up to a certain age?

Dr. FUNK. I think it is very important that parents be aware that children who are probably below the age of 7 or 8 do have a tendency to become drawn into fantasy and may have difficulty separating it from reality. And we do not know how their developing personalities at those ages could be affected by intense exposure to this sort of interactive violence. So I think parents need to be especially aware of children under 10 to 12, that they monitor what their children are exposed to in terms of violent interactive games.

Senator BROWNBACK. Because they are so susceptible to that blurred vision between reality and whatever image-making that they may be drawn into or fantasy?

Dr. FUNK. That is correct.

Senator BROWNBACK. Please, Dr. Anderson.

Dr. ANDERSON. If I might add to that a little bit. I agree with Jeanne completely in her statement that we need considerably more research on these issues. There are a lot of things that we just do not know. And one of them is there are not any studies cut there, at least in the video game literature, looking at how much of a difference in effect does sort of cartoon-like violence—we are assuming that that has a less effect than very realistic violence. And there are some good reasons for expecting that to be true, but there is no research on it. There is no real funding for that kind of research.

When I say that there is clearly a causal impact of playing violent video games on aggressive behavior, there are a handful studies that are the basis of that statement. And I would stand behind that statement. But I also would say there are a lot of things we do not know, a lot of the details. In fact, we do not know hardly any of the details. And I think that is what Jeanne really has been focusing on, and I would agree with her wholeheartedly on that.

Senator BROWNBACK. The nation was recently just shocked by a 6-year-old boy in Michigan taking a gun to school and shooting a 6-year-old classmate. Yet, I have read one researcher saying that he was not surprised, given that it seemed like, in his environment, a violent response was not unusual, and the only thing that may limit us on how young a child picks up a gun to shoot somebody is whether they can lift the gun up or not.

Did any of you have thoughts about what is happening when we have that type of situation, 6-year-olds shooting and killing other 6-year-olds?

Dr. FUNK. I think it must be that he did not realize the permanence of that action and the reality of that action. And that is really exactly what Dr. Provenzo is speaking about, that it felt to him perhaps like a television experience.

Dr. PROVENZO. He said at some point, if I remember the quote correctly: This is not like TV. This did not come out like TV. He was sort of shocked. It just was not working out like a television program.

Dr. FUNK. Right.

Dr. PROVENZO. I think it is telling you something about where he is constructing his view of the world from. It is coming from media sources.

Senator BROWNBACK. These are all three very good statements. Professor, yours is a scary one. It is almost like going into genetic engineering without any regulatory atmosphere, without any care or concern about what mutation we put out there. Am I characterizing what you are saying and capturing your feeling correctly?

Dr. PROVENZO. Absolutely. I feel very, very strongly that what we are doing is we are talking about the construction of our culture, and that this is done through educating people. We educate people through a very broad selection of sources in contemporary culture, and a lot of them are coming from media.

I think we have a profound obligation to understand what the impact of those various media forms are. And what is happening right now, because of computerization and the extraordinary ability to create simulations of striking, of extraordinary character and nature, we just do not know what the consequences are of these types of simulations and the reality that they are constructing.

Senator BROWNBACK. But the likelihood of negative response is extraordinarily high. As a matter of fact, Dr. Anderson, you are saying it is causal and it is there. Dr. Funk, you are saying it is correlated, at least now, and it could well be causal as well. And under any scenario, you are saying this is negative.

Dr. PROVENZO. Yes. And I would like to make a comment in this context about the issue for funding. We are researchers. And I think one of the interesting things is, I know at least in my case and I suspect in my other co-researchers' case, this is not research that was funded or supported except within our universities. This is stuff that we pursued because of our own conviction and our interests. This is not an area that has received a lot of attention.

It is, quite frankly, considered by some of our co-researchers as being sort of trivial. And one of the questions I frequently get is: Why are you messing around with games and media? There are more important issues out there.

I would argue that this is one of the most profound issues that we could be facing. And it is essentially an interdisciplinary issue. It involves having to have, I think, the insights of sociologists, psychologists, child development people, educators, and media experts. And I think it is a very, very complex question.

I think we are at a point right now that is very, very similar to the emergence of television as a medium, in which we are seeing a convergence of these electronic technologies coming together in both the Internet, video games, television in a new form of a convergence of these technologies. And I think we have very, very little understanding of what they are about.

It is sort of like we are in the year 1948 or 1949, when television came on the scene, and we are not taking the opportunity to ask ourselves: What is it that we need to understand? What is the impact of what we are doing on our children? How is it affecting our culture and society?

This is an enormously important opportunity to ask those types of questions. I think we are missing that opportunity by not pursuing this much more aggressively.

Senator BROWNBACK. One of the video games that we saw a clip of from Dr. Walsh was Duke Nukem. It involved sexualizing violence. What problems would one anticipate this posing to young children? Particularly since most of these games are marketed to and played by boys, what does it do to them?

Dr. ANDERSON. At this point, there is no directly relevant research on the video game, from the video game perspective. From the television and movie violence literature, we can have a pretty good guess that the impact is going to be anything but good. It is going to lead to the creation of attitudes toward women that are attitudes that frankly none of us in this room would view as positive—negative attitudes toward women, objectification of them, increasing sort of this notion that violence against women is okay.

But, again, there is no research base that I know of directly looking at this from the standpoint of what effect are these kinds of video games having.

Dr. PROVENZO. There are some unexpected consequences, I think, that need to be taken into account. When I did my book "Video Kids: Making Sense of Nintendo," I did a content analysis of the main themes in the 47 most popular Nintendo games. Nine of the 10 most popular games—and this is very dated material, this was a book published back in the early nineties—but nine out of 10 of the most popular games had as their primary theme the murder, abduction, or implied rape of a woman.

Now, when I went out and I interviewed—and some of it is pretty benign, you know, it was rescuing the princess in Princess Zelda. Other things were much more graphic and direct, like Street Fighter II. But when I went out and interviewed girls at the elementary level about being interested in video games and being interested in computers, they said they wanted to play with video games, they were interested in them, but, in point of fact, they could not find games that they liked because they all had sort of stupid boy things. I think that is a code for saying they did not like the idea of being victims playing the games.

Now, the video game companies come out and say, and I think they are correct, I think it is a logical argument, video games are the first entry into the culture of computing for girls. And if girls are being discouraged from entering the culture of computing, then there is a very serious issue here in terms of gender discrimination as they progress through the educational system and into professional careers.

Essentially, what we are doing is we are really discouraging women from seeing computing as an interesting and supportive environment if video games are, in fact, the portal for entering the computer culture, which I think it is to a large degree.

Senator BROWNBACK. That is a troubling aspect, but the objectification of women even more so here.

Dr. Anderson, would it be fair to say that there is a public health impact to consuming violent entertainment?

Dr. ANDERSON. I would definitely say that, that it is a public health, or should be, a public health issue. As Jeanne was pointing out, sometimes our colleagues think that because the word "game" is associated with some of the work that we are doing, they think it is not very serious. And in my own case, I actually had to convince some colleagues that when they were compiling a list of faculty whose research has some relevance to health psychology, that my name should be on the list.

In order to convince them that my name should be on this list, I had to point out to them that the Surgeon General at one point said that death by murder is in fact a public health issue. That did convince them.

Senator BROWNBACK. Would all of you agree that there is a public health impact to consuming violent entertainment?

Dr. FUNK. Absolutely.

Dr. PROVENZO. Absolutely.

Senator BROWNBACK. As you may know, we give away spectrum to broadcasters. And when we do so, there is a requirement that their programming, quote, "serve the public interest." It is a very specific item, and it has been in there for a long period of time, that since the spectrums are provided, that they must be used in the public interest.

From the public health perspective, does violent entertainment serve the public interest or does it undermine it?

Dr. ANDERSON. I would say it definitely undermines it. It is hard to imagine a redeeming feature to any of the really violent media that is out there now. And certainly for kids.

Dr. FUNK. Yes, especially in the case of children. I think it is very important that we look carefully at the impact of violent entertainment on children. It certainly does not serve their interest.

Senator BROWNBACK. Does it serve the public interest?

Dr. FUNK. I do not believe that it serves the public interest at all. But I recognize that there are certain freedoms that we have in this country that obviously we all respect.

Dr. PROVENZO. Let me go back to the storytelling issue. George Gerbner, is a wonderful media researcher. He talks about the mean world phenomena and that television constructs, as an example—but I think other forms of media—the idea that the world is much meaner and crueler than it actually is. I think video games do that, too. I think that is unfortunate. I think we need to have better stories sort of percolating through our brains than all the mean stories.

There is enough meanness in the world. I do not mean to sound Pollyanna-ish. It is just, why do we need to excessively emphasize this?

Senator BROWNBACK. Do you believe, from a public health perspective, that violent entertainment does not serve the public interest?

Dr. PROVENZO. I am not a psychologist. I am not a medical health expert. But from the point of view of an educator, I would go back to the notion of these are not—I am not saying we should not have stories with violence in them. I am not saying that violence does not play a role in art and in the media. I just think that the excessive focusing on this to the exclusion of other types of stories is really tragic for our culture.

Senator BROWNBACK. And harmful to our culture?

Dr. PROVENZO. And harmful, yes.

Senator BROWNBACK. Thank you very much. I want to thank all the panel members for being here today. I think this has been very enlightening.

I am troubled by what I see. I have five children, and two of them are avid video game players. And I was this weekend in a video arcade with my children. And you do get very concerned about what you see. It is the romanticized violence. It is the excessive violence. It is everywhere. It is every clip. It is all surrounding you.

It is sexualized violence. It is objectification of others. It is removal of any sort of care for anybody else. And this is about killing. It is not about caring. We try to monitor that closely, and yet I cannot help but to think this is having an extraordinary negative impact across this country. And that is why we have started this set of hearings, to try to get that information.

I appreciate your thoughts, too, about the need for more research. I am hopeful that we can provide that sort of effort and funding from Congress, to be able to do that, so we can spread the information about what is taking place and learn better what is occurring. Under any scenario of what any of you have presented, it is not positive. It is negative. We just do not know to what degree or how completely harmful it is to us.

The record will remain open for the requisite number of days for people to provide additional statements for the record.

Senator BROWNBACK. With that, again, thank you all.

I thank the first panelists for coming and sharing your great difficulty that you have been through, as well.

The hearing is adjourned.

[Whereupon, at 11:35 a.m., the hearing was adjourned.]

APPENDIX

Prepared Statement of Douglas Lowenstein, President, Interactive Digital Software Association

This testimony is submitted on behalf of the Interactive Digital Software Association[1] the trade body representing U.S. video and computer game software companies that publish games for use in the home. In 1999, the industry generated $6.1 billion in retail software sales. IDSA's 32 members account for 90% of the edutainment and entertainment software sold in the US.

I apologize for not being able to appear before the Committee in person. However, I had a long standing prior commitment in Arizona which could not be rescheduled. I hope the testimony and attachments which follow will be included in the Committee record, and I look forward to a continuing dialogue with the Members about these important issues.

The subject of today's hearing is The Effects of Interactive Violence on Children. I certainly understand the interest in this topic in the aftermath of tragic school shootings over the past few years, as well as the frenzied media reports—often inaccurate and misleading—about interactive entertainment in the months after Littleton. This is an important topic which deserves a fair and balanced discussion.

By far the most exhaustive and objective analysis of this subject was released this past December by the Government of Australia in a study entitled "Computer Games and Australians Today." This detailed report, which is provided as an Appendix to my testimony, stands out above all others for two reasons: first, it was carried out by a government with a history of tough regulation of entertainment content for the purpose of determining whether government regulation is merited; second, unlike some of those who will appear before you today, it was written by authors who lack preconceived points of view on the issue of whether violent games lead to aggressive behavior. I think it is especially helpful to the Committee since it provides an independent, unbiased, peer-based evaluation of some of the research you will hear about today. I will discuss this study in more detail later in my testimony, but let me quote to you here the key conclusion.

> "The accumulating evidence—provided largely by researchers keen to demonstrate the games' undesirable effects—does indicate that *it is very hard to find such effects and that they are unlikely to be substantial* (emphasis added)."

The Computer and Video Game Industry Today

Any dialogue on the effects of violent video and computer games on children must be carried out with an understanding of the broader context of the interactive entertainment industry, its products, and its customers. So before addressing the specific question of what the prevailing research tells us about the effects of violent video and computer games on children, I want to discuss briefly some facts about the interactive entertainment industry as it stands today.

There are six critical points to understand:

Point One: The most frequent users of computer and video games are adults, not kids. This is a surprise to many who still perceive the industry as a toy-based business appealing to adolescent males. But in fact, 70% of the most frequent users of PC games are over 18; and 38% of these are over 36. The picture is similar for video game consoles: 57% of the most frequent users are over 18, and 20% are over 36. Those products that contain violent content, and it is a minority of the total produced (see below), are made to appeal to this adult population.

Point Two: The vast majority of games do not contain significant levels of violence, and the vast majority of top selling games are largely non-violent. Of the top 20 best selling games in 1999, none carried a Mature rating from the Entertainment Software Rating Board (ESRB), and only five carried a Teen rating. Looking at games sold by type, the data shows that just over 5% of all games sold last year were in the so-called "shooter" category which received so much attention after Columbine, and this category is so broadly defined that it includes such benign games as a Star Wars space war title and a version of the classic arcade game Asteroids. In fact, if one were to focus strictly on games like Doom, their percentage of the total market is even lower.

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[1] IDSA's members only publish software for the home. The arcade game business is a different sector with its own representatives.

Point Three: There is a mass market for games today which crosses all ages, genders, and tastes. The notion that the industry should homogenize content to appeal only to young users makes as much sense as encouraging book publishers to stop publishing Steven King novels and only issue books appropriate for young readers.

Point Four: While the market is diverse, 70% of all games made are rated by the ESRB as appropriate for everyone. Only nine percent of the more than 6,000 products rated by the ESRB have earned a Mature rating reflecting the presence of significant levels of violence. ESRB ratings have been lauded for their accuracy and reliability by such diverse observers as Sen. Joe Lieberman and child advocate Peggy Charren. And we know these ratings work when parents know about them and use them. Last summer, a survey conducted for the ESRB by the highly regarded Peter D. Hart Research Associates, Inc. found that 73% of the parents who were aware of the ESRB rating system find it helpful in making informed purchasing decisions. We also know that nine out of ten games are actually purchased by adults for their kids so they can, if they choose, control the games their kids play. Finally, the Hart survey revealed that three out of four parents under the age of 44 provide a significant level of supervision over the games their kids play. So the control really is in their hands.

Point Five: Between 1991–97, video game sales surged 128%. Meanwhile, between 1993–97, a period covering the most dramatic growth in video game sales, juvenile violent crime fell 40%. No one would say that video games are responsible for falling crime rates. But these numbers do suggest that those who point to games as a leading culprit in youth violence do not have the facts on their side.

Point Six: Many of the games sold here which have prompted concern about the effects of interactive entertainment on children are sold all over the world. In fact, in some countries, even more violent games are available. Yet, despite growth rates in foreign markets similar to those in the U.S., youth violence in these countries does not even approach the levels in our country. If interactive entertainment causes violent behavior, why is violent crime among juveniles so low in foreign markets with the identical products? This suggests we need to look far deeper to identify the causes of youth violence than games.

Research on Interactive Entertainment

Let me now turn to the academic research. I have attached as an Appendix to my testimony a report analyzing the research on video game violence and other issues prepared at IDSA's request by Jeffrey Goldstein, Ph.D., Department of Social and Organizational Psychology at the University of Utrecht in The Netherlands. Dr. Goldstein has authored and edited numerous books on media violence, including his latest, "Why We Watch: The Attractions of Violent Entertainment", and is a Fellow of both the American Psychological Association and the American Psychological Society.

I will leave the scientific analysis to Dr. Goldstein and the Australian Government's study, also attached as an Appendix. But I want to make a few general points.

- *Australian Research*

Let me turn here to the Australian study. This study updated a 1995 study conducted by Kevin Durkin, Ph.D., Associate Professor of Psychology, University of Western Australia. In that study, which reviewed all literature on the effects of video games on users, Durkin concluded, "Overall, evidence is limited, but so far does not lend strong support to the claims that computer games play promotes aggressive behavior."

As noted earlier, the new study reaches much the same conclusion after evaluating research carried out since the 1995 study was published.

A few key points from the Australia study are worth reporting. First, government researchers found in a national survey that "most people associate positive feelings such as enjoyment, happiness, exhilaration, relaxation, and challenge with playing computer games": and that "young players report that aggressive content is not the central attraction of games. Many players said that they perceive the aggressive content as fantastic and preposterous, with the result that they do not take it seriously; they do not perceive their own actions as harming others since they do not believe the characters are real or suffer pain." This punctures the oft-repeated statement that kids prefer violent games or that they take them seriously.

I want to cite briefly a few important studies covered by the Australians. Derek Scott, as reported in the Journal of Psychology, had hypothesized that the more aggressive games subjects played, the more aggressive they would become. He set out to prove this point of view, and failed. In fact, Scott found that the moderately aggressive games substantially decreased feelings of aggression, whereas the highly aggressive game resulted in no more of an increase in aggression than the non aggressive game. "Results are discussed in terms of a general lack of support for the commonly held view that playing aggressive computer games causes an individual to feel more aggressive," Scott wrote. There are several other studies which have sought to prove that the more aggressive the game played, the more significant the impact on behavior, and the have not been able to demonstrate this link, suggesting that there is not nexus between the level of aggression in a game and behavior outside it.

The Australian authors also note a 1997 study by Dutch researchers Van Schie and Wiegman who believed that the more users were exposed to violent games, the more aggressively they would behave. In fact, they reported, no relationship was found between the amount of play and aggressiveness.

In sum, the Australian Government study concludes that, "Despite several attempts to find effects of aggressive content in either experimental studies or field studies, at best only weak and ambiguous evidence has emerged."

- *Research Methodology*

In evaluating any research on this topic, pro or con, it is important to carefully evaluate the methodology, definitions, and interpretation of the data. In this regard, Dr. Goldstein notes: "Neither the quantity nor the quality of research on video games does much to inspire confidence in solid conclusions about their effects. Nearly every study suffers from vague definitions (of violence or aggression), ambiguous measurements (confusing aggressive play with aggressive behavior), questionable measures of aggression (such as blasts of noise or self-reports of prior aggression), or overgeneralizations of the data."

Take, for example, the issue of how aggression is defined in the studies. Psychologists define violence or aggression as "the intentional injury of another person." Yet, in video games, there is neither intent to injure nor a living victim. Nonetheless, some researchers loosely claim that the goal of certain games is to "kill" opponents. But there is no literal killing and it is a massive leap of logic to suggest that vaporizing an animated character leads to or causes real world killing.

Another flaw in some research on this topic lies in how the research is carried out. Many of them, for example, are conducted in lab settings which do not replicate even remotely the environment and experience of those who play games for entertainment.

Dr. Goldstein writes: "Experiments that claim to study the effects of playing electronic games rarely study play at all. In reality, a game player chooses when and what to play, and enters in a different frame of mind than someone who is required to 'play' on demand. Some have argued that the link between media violence and aggressive behavior is as strong as the link between cigarette smoking and cancer. This is not so. We can measure the presence or absence of disease with reasonable precision, but we cannot easily or reliably measure aggressive behavior in laboratory settings. We have only indirect and often questionable measures of aggression at our disposal."

It is true that some research, including some you may hear about today, claims that video games lead to aggressive behavior in the real world. But often these are conclusions and speculation not supported by the underlying research. It is argued, for example, that video games reinforce murderous behavior! Last time I checked, murder was the taking of a human being's life. Equating that to shooting alien creatures is totally unsubstantiated, and requires one to assume that the player will believe that what is permitted in the fantasy world he or she voluntarily entered is sanctioned in real life.

In fact, rather than suggesting that playing violent games leads to aggressive behavior in the real world, at best there is some weak evidence that this activity may lead to more aggressive play. In 1999, British researcher Mark Griffiths reviewed the literature on the subject and noted that what some researchers report as aggressive behavior is really only an increase in aggressive play—such as mock battles or running around making believe you're killing aliens—with no intent to injure, as required by the standard psychological definition of aggression. This point cannot be overemphasized. There is a world of difference between running around making believe you're killing aliens, or martial arts play fighting, and picking up a real weapon and shooting your friends. *There is not a shred of evidence in the academic lit-*

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erature to support the allegation that a violent video game leads to aggressive behavior in real life.

Some researchers do claim that they have established a link between playing a violent game and aggressive behavior, such as Anderson and Dill. But their measure of aggressive behavior is not evidence of an actual violent act or the actual intent to injure someone, but the intensity and duration of noise blasts initiated by their subjects. I am not a psychologist but I would suggest that basing a conclusion that violent games lead to aggressive behavior on how loud and long someone blows a horn is not a sound basis for policy or pronouncements. Another measure used in this research is reaction time to aggressive words flashed on a screen after playing a violent game. A faster response was presumed to indicate aggressive thoughts. But it means nothing of the sort, anymore than if one played a golf game and then responded faster to the word "putter" means that you have golf on the brain. This kind of weak data represents the high water mark for research seeking to establish that violent video games lead to aggressive behavior, and it is extremely weak and ambiguous at best, and is contradicted by other research.

Yet another weakness in some of the research is that it fails to control for the pre-existing tendencies that subjects bring into the research. Griffiths points out that more aggressive children may be drawn to more violent games. And the Australian authors suggest that "it would appear plausible that the direction of effect is from player to game. Computer games cannot turn players into boys. A more reasonable interpretation is that people with certain characteristics seek out certain types of games. It remains uncertain whether involvement in aggressive games by already aggressive individuals contributes to the exacerbation of their aggressive tendencies, provides a harmless avenue for its discharge, or makes no difference."

Television vs. Interactive Entertainment

Another statement often made about video games is that one can extrapolate the effects of television research to computer games. This is not only bad science, it may be wildly misleading. One difference between video games and TV is that video game players exert control over what takes place on the screen. They are participants in an interactive system that allows them to regulate the pace and character of the game. This, in turn, gives them increased control over their own emotional states during play. A substantial body of research demonstrates that perceived control over events reduces their emotional or stressful impact.

Military Simulators

Over the last year, much attention has been paid in Congress and the media to claims that the military's use of video game technology in training suggests that these games when used in the home train kids to kill. There is no evidence to support this wild claim, the purveyor of it has absolutely no research on which the claim is based, and the Pentagon itself dismisses the notion that it uses simulators to teach soldiers to kill. I will not dwell on this issue here, but will be happy to provide detail on this claim should the Committee desire.

Proactive Steps by the Video and Computer Game Industry

Does this mean we do nothing? The answer is no. Last Spring, I testified before this Committee and pledged to take a series of steps to address concerns about violent video games, including stepping up promotion of the ESRB, working with retailers to uphold the ratings at the point of sale, and addressing concerns about video game advertising. We have redeemed all of these pledged.

Our industry has been and continues to be extremely proactive in addressing concerns about the content of the small minority of products which give rise to the concerns covered in this hearing. We agree that some games are not appropriate for young children. That's precisely what the ESRB ratings tell consumers. The single most meaningful step industry and government can take to protect children from games that may not be appropriate for them is to educate parents about how to use ESRB ratings.

To that end, the ESRB mounted a major campaign last holiday season to raise awareness and use of its ratings. This campaign included paid ads in national publications with significant parent readership. It also included a PSA featuring golf superstar Tiger Woods encouraging parents to "Check the Ratings" before buying games for their kids. ESRB also reached out to various national groups such as the PTA, Mothers Against Violence in America, and the YMCA and YWCA to distribute information about ESRB ratings to their constituents.

Another major element of the effort was to encourage retailers to carry information about ESRB ratings in their stores, and to adopt policies to uphold the ratings at the point of sale by not selling Mature or Adult Only games to persons under 17. Such national chains as Toys 'R Us, Babbages, Electronics Boutique, and

Funcoland all agreed to either actively restrict sales of "M" rated games to persons under 17 or to use their best efforts to prevent such sales. In addition, the ESRB printed and distributed over 5 million brochures on how to use ESRB ratings to retailers.

Separately, the three major video game console hardware companies—Nintendo, Sega, and Sony—all agreed this Fall to include in their hardware packages information on the ESRB, a step which put critical ratings information into the hands of millions of new consumers this holiday season.

IDSA was active in other areas as well. This Fall, our Board of Directors created a new Advertising Review Council within the independent ESRB organization to develop and enforce an expanded advertising Code which for the first time includes content standards and various restrictions on the placement of ads for video and PC games. The new ARC opened its doors for business February 1. The ARC has secured support for its content guidelines from the three major video game magazine chains who have agreed to adopt the ARC code as their internal standards and practices.

We're also pleased that the ESRB reached an agreement late last year with AOL in which AOL will adopt the ESRB ratings on its game service, a major step toward expanding ESRB's Internet presence.

We also welcome the study by the Surgeon General of the United States into the causes of youth violence, and will cooperate with that office as it proceeds.

Late last year, the IDSA conducted research asking parents who is responsible for controlling the video games children play. The overwhelming majority of respondents said it is up to the parents. Our industry will continue to make products that appeal to people of all tastes and interests. Some of these will not be appropriate for younger consumers. But absent unconstitutional restrictions on content, and absent any compelling scientific research showing that playing violent games is harmful, the best way to ensure that kids don't play games that are not suitable for them is to maximize parental awareness and use of the existing rating system. Our industry pledges to you that we will continue to actively promote the ESRB system to increase its utilization by parents, and we hope you and others who share your concerns will join us in that ongoing campaign.

Conclusion

While the subject of this hearing is the effects of violent interactive games on children, I want to briefly point out that there is a growing body of evidence that video games have many positive effects on players, including enhancing educational performance, improving spatial skills, improving cognitive development, and as therapeutic tools to treat attention deficit disorders, among other things. I hope we can address these benefits at some future hearing rather than continually and exclusively focusing on the issue of violence.

You will hear from witnesses who have generally expressed concern about the effects of interactive entertainment on children. We did provide the Committee with the names of other experts who do not share these views, and we were disappointed that none of them were asked to appear, or that the Committee did not seek out those with different views on its own. For this reason, we have included two additional submissions which evaluate all of the current research on the topic and reach the conclusion that there is no compelling research which supports the belief that playing violent video games in the real world causes aggressive behavior in the real world. Put another way, there is no scientific basis to argue that entering the fantasy world of Doom in the home using a mouse causes players to gun down their friends in the school yard.

But even if one were to agree with those who believe there is cause for concern about the effects of violent entertainment on children, the question is what can be done about it? Video games and computer games are protected forms of expression under our Constitution. Some may not like particular games, but the case law is clear that efforts by government to regulate violent content is unconstitutional. For this reason, I appreciate the fact that Senator Brownback has publicly said that this hearing is not for the purpose of pursuing legislation to regulate the video game or entertainment industries. Thank you.

PREPARED STATEMENT OF JEFFREY GOLDSTEIN, PH.D., DEPARTMENT OF SOCIAL AND ORGANIZATIONAL PSYCHOLOGY, UNIVERSITY OF UTRECHT, THE NETHERLANDS

My name is Jeffrey Goldstein. I received a PhD in psychology from Ohio State University, following which I was professor of psychology at Temple University (Philadelphia) for nearly 20 years. Since 1992 I have been with the Department of

Social and Organizational Psychology at the University of Utrecht, in the Netherlands. Among the books I have written or edited are *Sports, Games and Play* (Lawrence Erlbaum Associates), *Aggression and Crimes of Violence* (Oxford University Press), *Toys, Play and Child Development* (Cambridge University Press), and in 1998, *Why We Watch: The Attractions of Violent Entertainment* (Oxford University Press). I am a Fellow of both the American Psychological Association and the American Psychological Society. I serve on the academic advisory committee of the Entertainment Software Rating Board (New York), which developed a widely used system for rating video and online games.

This overview of research on the effects of electronic games was prepared at the request of the Interactive Digital Software Association (Washington, D.C.), for whom I regularly review research on this subject. I have read nearly all the published English-language research on electronic games, which includes video and computer games, CD–ROM and online games. Neither the quantity nor the quality of research on video games does much to inspire confidence in solid conclusions about their effects. Nearly every study suffers from unclear definitions (of violence or aggression), ambiguous measurements (confusing aggressive play with aggressive behavior, or using questionable measures of aggression, such as blasts of noise or self-reports of prior aggression), and overgeneralizations from the data. Experiments that claim to study the effects of playing electronic games rarely study play at all. In reality, a game player chooses when and what to play, and enters in a different frame of mind than someone who is required to 'play' on demand.

Some have argued that the link between media violence and aggressive behavior is as strong as the link between cigarette smoking and cancer. This is not so. We can measure the presence or absence of disease with reasonable precision, but we cannot easily or reliably measure aggressive behavior in laboratory settings. We have only indirect and often questionable measures of aggression at our disposal.

Research on Electronic Games

There are 4 types of research on electronic games: 1) Demographic surveys describe who plays which games. 2) Correlational studies examine the relationship between video game play and other behaviors, such as aggression or school performance. 3) Experiments seek to establish cause-and-effect relationships by requiring some individuals to play video games and others to play other (or no) games. Measurements are then taken to establish the effects of video games. 4) Applied research uses electronic games as a medium for education, training, medicine, and therapy.

The file drawer problem

Published research in scholarly journals does not represent all the research on electronic games. Studies that fail to find statistically significant results are less likely to be accepted for publication. So the published record is an unknown fraction of all research, and it tends to consist of those studies with statistically significant results. This is known as 'the file drawer problem' because studies that do not find any effects of video games remain unpublished, locked away in the researcher's files.

Surveys

Industry people can provide demographics of games players of the growth of electronic games from a youth activity to one that cuts across all ages and both sexes. Research by social scientists tends to focus on potential problem areas, such as video game 'addiction' or the relationship between the extent of gaming and school performance. Concerns about addiction to video games have lately given way to concerns about internet addiction (Kraut, et al. 1998).

Studies that consider addiction to video games offer snapshots in time rather than dynamic pictures of play over a period of weeks or months. At any given moment, there are players deeply immersed in the gaming experience, but this obsession is temporary, according to a large-scale Australian survey (Durkin 1998).

Barrie Gunter (1998) concludes in his review of video game research, "There is international evidence that video games do not preoccupy children and teenagers to the exclusion of other pursuits. . . . Some children may admit to playing more than they think they should, but few signs have emerged so far that video game addiction is a growing social problem. Video game players do not differ significantly from non-players in terms of other activities, including sports."

Correlates of Violent Video Game Play

Some studies compare the most frequent players of electronic games with those who play less often (for example, Anderson & Dill in press; Griffiths & Hunt 1998; Roe & Muijs 1998). In some studies, frequent play with violent video games is correlated with lower school performance, more aggression, delinquency, and behavioral and emotional problems. The heaviest users of video game are males, and those who prefer violent video games are most likely to be above average in aggression, and to show other characteristics of aggressive men: namely, poorer school performance, less interest in bookish activities, more delinquency, and so on. These correlations do not imply causality. According to one study (Roe & Muijs 1998), poor performance in school motivates some boys to achieve success in the world of video games. Following are descriptions of recent correlational studies of violent electronic games.

Jeanne B. Funk and her colleagues (1999) claimed to examine whether a preference for violent electronic games is "associated with an increase in problem behaviors" in adolescents. Boys and girls at a middle school and at a school for children with behavioral problems completed questionnaires about their video game experience and problem behaviors. The children were divided in half according to whether they played video games "high in violence" or "low in violence." For girls, playing violent video games was not associated with any clinical problems. Those who played violent video games scored higher on something called "thought problems," but this is not further defined or described. Boys who played video games low in violence had *higher* delinquency scores than boys who played more violent video games! Other studies also fail to find that higher levels of violence in video games has stronger effects than lower levels of violence (for example, Anderson & Ford, 1986).

Comments on the Funk et al. study

The study cannot possibly show whether violent electronic games are related to an increase in adolescent problems because it does not measure changes in problem behaviors. It is a static study that measures self-reports of play with violent games and self-reported problem behaviors at one point in time. The study did not find more violent video game playing among children at the school for adolescents with behavior problems. Suppose instead of finding very little, Funk et al. had found that those who played violent electronic games had more behavior problem behaviors. What would that tell us about violent electronic games? It would not imply that games *cause* these problems. Some youngsters with problems may use video games as a way of *coping* with problems. There is no way to draw sound conclusions from such a study.

Craig Anderson and Karen Dill (in press) conducted a study on the correlates of experience with violent video games. Seventy-eight men and 149 women undergraduates at a midwestern university completed questionnaires about their exposure to video game violence and paper-and-pencil measures of delinquency, aggression, irritability, world view, and grade point average. The university students indicated their favorite games, and were asked to recall how often they played video games in recent months, during the 11th and 12th grades, during the 9th and 10th grades, and during the 7th and 8th grades. Also measured were perceptions of crime and feelings of safety.

Results. As in some previous research, Anderson and Dill found a positive correlation between experience with violent video games and measures of aggression and delinquency. This does not mean that the former is a cause of the latter. Highly aggressive youngsters are attracted to violent video games (Goldstein, 1998). Both aggression/delinquency and involvement with violent video games may be the result of other factors, such as a high need for arousal, excitement, or attention. Perception of crime was not significantly related to play with violent video games. George Gerbner and others found that people with the most exposure to television overestimate crime rates. Anderson and Dill did not find that here; experience with violent video games was not related to perception of crime.

Anderson and Dill write of their data as though they are describing a causal sequence. "The positive association between violent video games and aggressive personality is consistent with a developmental model in which extensive exposure to violent video games (and other violent media) *contributes to* the creation of an aggressive personality." In sum, Study 1 indicates that concern about the deleterious *effects* of violent video games on delinquent behavior, aggressive and nonaggressive, is legitimate," write Anderson and Dill. But their study has nothing to do with the effects of video games, deleterious or otherwise [emphasis added]. Correlation is not causality, no matter how tempted one may be to argue otherwise. The authors acknowledge this when they write, "However, the correlational nature of Study 1 means that causal statements *are risky at best*. It could be that the obtained video game violence links to aggressive and nonaggressive delinquency are wholly due to the fact that highly aggressive individuals are especially attracted to violent video games."

Experiments with Violent Video Games

Much of what is written about video games with violent themes assumes that the media (including electronic games) affect vulnerable groups of people in ways that go against their grain, a 'magic ray' approach to the media. In contrast, I believe that people are extremely selective in the media they use and attend to, and that the effects the media have on them are pretty much the effects that the user is seeking.

Physiological reactions to video games

Electronic games are challenging, sometimes frustrating, exciting, surprising, and often funny. While playing, individuals may experience a range of emotions accompanied by physiological changes. In one study with university students, heart rate accelerated while playing a violent video game, and returned to baseline within 15 minutes following play (Griffiths & Dancaster 1995).

Winning a competitive video game did not result in a rise in testosterone level, as happens with the victors of competitive sports and chess matches (Mazur, et al., 1997). This may be because players do not regard video games as truly competitive, but see video game play instead as a cooperative activity.

Positron emission tomography (PET) scans were taken while healthy men played a video game. The neurotransmitter Dopamine, thought to be involved in learning, reinforcement of behavior, attention, and sensorimotor coordination, was released in the brain during play (Koepp 1998).

Violence and 'violence'—Matters of definition

When people refer to "violence in the media" or "violent video games" they rarely distinguish between real violence—people hurting one another as in warfare or a slap in the face—and symbolic or fantasy violence, in which characters engage in mock battle. Nor do they distinguish between cartoon characters, fantasy figures in electronic games, dramatic violence portrayed by human actors, and real violence in news and documentary programs. Psychologists define violence or aggression as "the intentional injury of another person." However, there is neither intent to injure nor a living victim in an electronic game. Anderson and Dill (in press) write that "the goal of the player in Mortal Kombat is to kill any opponent he faces." But there is no literal killing here; something else is going on, namely, play and fantasy. When discussing "violence in the media" people do not usually mean literal violence.

An article by Dill and Dill (1998) further illustrates this confusion. They write, "If violent video game play indeed depicts victims as deserving attacks, and if these video games tend to portray other humans as 'targets,' then reduced empathy is likely to be a consequence of violent video game play, thus putting the player at risk for becoming a more violent individual." The Dills write that perhaps video games would have stronger effects than television because of the active involvement of players. They argue that players must "act aggressively" and are then reinforced for this "aggression." "In violent video games, aggression is often the main goal, and killing adversaries means winning the game and reaping the benefits. While in real life, murder is a crime, in a violent video game, murder is the most reinforced behavior. . . . The violent video game player is an active aggressor" according to the Dills, and "the players' behavioral repertoire is expanded to include new and varied aggressive alternatives."

Likewise, Anderson and Dill (in press) write, "Each time people play violent video games, they rehearse aggressive scripts which teach and reinforce vigilance for enemies, aggressive action against others, expectations that others will behave aggressively, positive attitudes towards use of violence, and beliefs that violent solutions are effective and appropriate. Furthermore, repeated exposure to graphic scenes of violence is likely to be desensitizing. . . . Long-term video game players can become more aggressive in outlook, perceptual biases, attitudes, beliefs, and behavior than they were before the repeated exposure. . . ." To my knowledge, there are no studies of the long-term effects of video games. There is no evidence that video games actually have any of these effects.

Effects of violent video games

Lt. Col. Dave Grossman (1995; 1999) has stressed the similarities between combat training and violent video games. He could just as logically have stressed their differences. Among the differences between training soldiers for combat and playing video games are:

- The motivations for undertaking the tasks are different.
- The individual can play or not, and can come and go, as he pleases.
- The intentions of the players are different.
- The players' beliefs about what they are doing and why differ.

- There are many cues in video games that 'this is play' (for example, sound effects, fantasy figures, scorekeeping).
- The behaviors reinforced (play vs. aggression) and the reinforcements themselves are different.
- The social relationships among the individuals involved are different.

Experiments on the effects of violent video games on the behavior of elementary school children typically fail to distinguish between *aggressive play* and *aggressive behavior*. After playing a Mortal Kombat-style video game, children, boys especially, are likely to engage in martial arts play-fighting. To many adult observers, the boys are thought to be acting aggressively, but in fact are engaged in aggressive *play*, where there is no intent to injure anyone (Silvern & Williamson 1987). Media violence research is clouded by such ambiguities.

According to British psychologist Mark Griffiths (1999) "the majority of studies on very young children tend to show that children become more aggressive after playing or watching a violent video game, but these were all based on the observation of free play." This is precisely the problem, confusing aggressive play with aggressive behavior, that leads to fuzzy conclusions. In the rare study that measures both aggressive play and aggressive behavior (for instance, Cooper & Mackie 1986; Hellendoorn & Harinck 1998), violent games affect the former but do not affect aggressive behavior.

In part because of these ambiguities, those who review the existing research on violent video games arrive at different conclusions. Among recent reviews, some conclude that violent video games are a cause of violent behavior (Anderson & Dill in press; Ballard & Lineberger 1999; Dill & Dill 1998), while others conclude that there is insufficient evidence to draw any conclusion (Australia 1999; Durkin 1995; Gunter 1998; Griffiths 1999). Anderson & Dill review published studies on video games and aggressive behavior, and conclude as have others, that every study suffers from flaws in methodology, ambiguous definitions, is open to alternative explanations, or results in inconsistent findings. "In sum," they write, "there is little experimental evidence that the violent content of violent video games can increase aggression in the immediate situation."

Anderson and Dill experiment

In an experiment by Anderson and Dill (in press), students played a violent video game (Wolfenstein 3D) or a nonviolent game (Myst) that were similar in their degree of difficulty, enjoyment, and frustration (although men considered Wolfenstein 3D more exciting than Myst). One hundred four women and 106 men from a midwestern U.S. university visited the laboratory twice, playing each assigned video game 3 times for 15 minutes per time. In the first session participants played the game, completed the affective and world view measures, and played the game again, then completed the cognitive measure. The cognitive measure of aggressive thoughts was the time it took to recognize aggressive words (for example, 'murder') flashed on a computer screen. Aggressive thoughts were not measured directly in this experiment, only reaction time to words flashed on a screen.

During the 2nd session, particiants played the game again for 15 minutes and completed the behavioral aggression measure. Aggressive behavior was measured during a 'competitive reaction time task,' in which the participant is told to push a button faster than an opponent. If participants lose this race, they receive a noise blast at a level supposedly set by their opponent. As their measure of aggressive behavior Anderson and Dill use the *intensity and duration of noise blasts* the participant chooses to deliver to the opponent. They write that this is "a widely used and externally valid measure of aggressive behavior," but this is open to doubt because there is nothing in this method nor in the instructions to the participants to indicate that there was any *intention to injure* anyone in this situation.

Results: Greater exposure to violent video games predicted greater aggressive behavior, particularly among those who were high in aggressiveness to begin with, and this was especially the case with men. The effect of violent video games was no different from that of nonviolent games on state hostility, or on crime perception or feelings of safety. The average reaction time to aggressive words was faster among those who had played the violent video game. The researchers interpret this to mean "the violent video game primed aggressive thoughts. This result suggests one potential way in which playing violent video games might increase aggressive behavior, by priming aggressive knowledge structures." [Does reacting quickly to aggressive words indicate aggressive thoughts?]

There were "absolutely no statistically significant effects of any of the independent variables—sex, trait irritability, video game type—on either the win or lose noise intensity settings." Participants who had played Wolfenstein 3D delivered significantly longer noise blasts after lose trials than those who played the nonviolent game Myst. "Playing a violent video game increased the aggressiveness of participants after they had been provoked by their opponent's noise blast."

Anderson and Dill write, "The present research demonstrated that in both a correlational investigation using self-reports of real world aggressive behaviors and an experimental investigation using a standard, objective laboratory measure of aggression, violent video game play was positively related to increases in aggressive behavior. . . . The convergence of findings across such disparate methods lends considerable strength to the main hypothesis that exposure to violent video games can increase aggressive behavior . . . *The present results confirm that parents, educators, and society in general should be concerned about the prevalence of violent video games in modern society, especially given recent advances in the realism of video game violence*. . . . The results of the current investigation suggest that short-term video game violence effects may operate primarily through the cognitive, and not the affective route to aggressive behavior . . . Thus, the danger in exposure to violent video games seems to be in the ideas they teach and not primarily in the emotions they incite in the player. *The more realistic the violence, the more the player identifies with the aggressor. The more rewarding the video game, the greater potential for learning aggressive solutions to conflict situations.*" [emphasis added]

Comments on the Anderson and Dill experiment.

Can one generalize from the Anderson and Dill studies to real-world video game players? Do their results justify the need to "be concerned about the prevalence of violent video games," and their increasing realism? Their studies do not address the realism of video games, or identification, or the effects of rewards, or attitudes toward conflict resolution. Do more realistic games have greater impact? Do players really learn that aggression is the solution to conflict? We do not know.

There is no sense in which the participants in this experiment *played* a video game, violent or otherwise. They were instructed to play a video game for a few minutes. Whatever effects are found may not generalize to the natural play setting in which real gaming takes place. Playing a game at the urging of an experimenter does not resemble the world of play. Almost no studies of the presumed harmful effects of video games have considered how and why people play them, or play at all.

No evidence is given that reaction time to aggressive words is a valid measure of aggressive thoughts, or that noise blasts are intended to injure another person.

Real acts of violence have been modeled on media images. The media may give *form* to aggressive behavior. But I am aware of no evidence that the media *motivate* individuals to commit aggression if they are not otherwise inclined to do so.

The Attractions of Violent Entertainment

Some critics condemn the makers of violent entertainment for marketing 'violence for violence sake' (Grossman 1995, 1999). But that is not what people seek. People are highly selective in the violence they seek or tolerate. Violence, if it is to be entertaining, must fulfill certain requirements: it must have a moral story in which good triumphs over evil, and it must carry cues to its unreality—music, sound effects, editing, a fantasy story-line, cartoon-like characters.

The audience for violent entertainment

Many who condemn violence in video games eagerly devour the latest novel by Stephen King. Men particularly like violent entertainment. For the majority of consumers, the violence is a means to ends, a device valued more for what it does than for what it is. The consumers of violent entertainment do not share a single motive. Some play violent video games to experience excitement, some to become experts and impress their friends, others because the games are challenging. Some young people play widely vilified games in order to elicit predictable, if negative, reactions from teachers, parents, or girls. Immersion in a fantasy world is also conducive to the pleasant transcendental experience known as "flow" (Csikszentmihalyi 1990).

People can choose the degree of emotional content with which they are most comfortable, just as they do when selecting music to listen to. An undeniable characteristic of violent imagery is its emotional wallop; it gives most people a jolt. Not everyone finds this kind of stimulation pleasant, but some do. Even if players find the violence repugnant, they can fine-tune their involvement in the game by focusing on its' graphics, technique, or on their score, in order to control their emotional involvement.

Youngsters are willing to expose themselves to unpleasant images because the benefits of doing so outweigh the costs. Players, like media researchers, have overriding reasons for engaging with violent themes.

Social identity

Violent entertainment appeals primarily to males, and it appeals to them mostly in groups. These are social occasions, particularly suitable for 'male bonding' and communicating a masculine identity. Boys may play violent video games alone in their rooms, but they are almost certain to talk about them with their friends. In a survey of Canadian youth, Stephen Kline (1999) observes, "For many of the male gamers, video gaming was part of a network of friendships and social affiliations making gaming into a cool thing."

The importance of context

Both the context of violent images and the circumstances in which they are consumed play a crucial role in their appeal, and probably in their effects. In order to experience pleasure from exposure to violent images players must feel relatively safe in their surroundings. Furthermore, there must be cues that the violent images are produced for purposes of entertainment and consumption. Bloody images lose their appeal when there are few cues to their unreality (McCauley 1998). If the violent imagery does not itself reveal its unreality, the physical environment may do so. We are aware of holding a joystick or remote control, of playing a game on a console or computer screen. Without background music, special effects, or fantasy characters, images of violence are unattractive.

Electronic Games in Education, Therapy, and Science

In her book Playing with Power, Marsha Kinder (1991) notes that video games 'have considerable educational and therapeutic value for a diverse range of groups—including adolescents, athletes, would-be pilots, the elderly in old-age homes, cancer patients undergoing chemotherapy, stroke victims, quadriplegics, and young children suffering from palsy, brain damage, and Down's syndrome.'

Electronic games are used to teach and reinforce skills in education, science and medicine. Games are used increasingly to study learning (Blumberg 1998; Rieber 1996), memory (Shewokis 1997), motivation (Wong 1996), cognitive processes (Kappas 1999), attention and attention deficits (Pope 1996), and spatial abilities (Subrahmanyam & Greenfield 1998; Tkacz 1998). Electronic games have been developed to teach safe sexual practices to adolescents, and to help diabetic children better manage their illness (Lieberman 1998).

Sometimes the hardware is of interest. Commercial electronic games have much to recommend them as psychological tests. The equipment is robust, inexpensive, small, light and portable, scoring is completely objective and the rules for any given game are the same for every player. An American mountaineering expedition to the 7,700 meter high Tirich Mir used two games to measure performance, Simon Says to measure short-term memory, and Split Second to measure pattern recognition and reaction time. The games operated normally even at 7,000 meters under the extreme conditions of the climb (but the batteries had to be warmed by the climbers). "What seems beyond doubt is the possibility of testing performance under extreme conditions by means of electronic games" (Jones 1984).

Spatial abilities

Video games are among the most successful means of reducing the traditional sex difference in spatial abilities (Subrahmanyam & Greenfield 1994).

Video Games in Therapy

Attention deficit/hyperactivity disorder is characterized by the inability to sustain attention long enough to perform activities such as schoolwork or organized play. Treatments include brainwave biofeedback training, in which systems feed back information to trainees showing how well they are producing the brainwave patterns that indicate attention. Pope and Bogart (1996) developed a video game that expands this concept by becoming more difficult as the player's brainwaves indicate that attention is waning. The trainee can succeed at the game only by maintaining an adequate level of attention.

Video Games and the Elderly

Electronic games can speed reaction times, hone cognitive skills, and may retard memory decline among the elderly (Drew & Waters 1986; Dustman 1992; Goldstein 1997).

What's Missing from Games Research?

The motivation to play is powerful. In seeking a site for a research project, I visited rehabilitation centers for people with severe handicaps. In nearly all of them, people were playing computer or video games, one man with his feet because he did not have the use of his arms, and one woman who had no movement in her arms or legs played by blowing through a straw. It is precisely this spirit of play that is missing from psychological experiments of video games.

Young people bring their entertainment choices and experiences to bear on their intense concerns with questions of identity, belonging, and independence. Much of their public behavior—the clothes they wear, the music they listen to, and the games they play—has a social purpose. How else are we to understand the fads of body piercing and tattooing, or the popularity of horror films or violent video games, except in reference to peer groups? Until researchers look, not at isolated individuals forced to play a video game for a few minutes as part of a laboratory experiment, but at game players as members of extended social groups, we are unlikely to come to terms with violent, or any other, entertainment.

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The Australian Study has been retained in the Committee files.

PREPARED STATEMENT OF THE VIDEO SOFTWARE DEALERS ASSOCIATION

Mr. Chairman,

Thank you for allowing the Video Software Dealers Association (VSDA) to submit a statement for the record at the hearing on the impact of interactive violence on children.

We want to assure the committee that VSDA and our members are concerned about the level of youth violence in our society. While we have no expertise in the relationship between video game violence and youth violence, the home video industry believes we have a role to play in helping parents ensure that their children do not gain access to video games that the parents deem inappropriate for them. We want to share with you the actions we have taken to assist parents in this regard and enlist your involvement in this effort.

Established in 1981, the Video Software Dealers Association is a not-for-profit international trade association for the $17 billion home entertainment industry. VSDA represents over 3,000 companies throughout the United States, Canada, and 22 other countries. Membership comprises the full spectrum of video retailers (both independents and large chains), as well as the home video divisions of all major and independent motion picture studios, video game and multimedia producers, and other related businesses that constitute and support the home video entertainment industry.

Video game sales and rentals are an important and increasing segment of the home video industry. In 1998, the domestic home video game market generated about $2.7 billion in software sales and about $800 million in rental revenue.

The members of VSDA agree with the premise that the best control is parental control. As stated in the final report of the Congressional Bipartisan Working Group on Youth Violence, which was issued two weeks ago, "[p]arents and other adults responsible for the development of children should be vigilant about protecting them from exposure to inappropriate programming." There is no better place than in a home video store for parents to control the content of the video games and movies to which their children have access. For this reason, VSDA-member retailers have taken action to aid parents in making more-informed entertainment choices for their families. We do this through a program we call "Pledge to Parents."

The centerpiece of Pledge to Parents, established by VSDA in 1991, is a commitment by participating retailers:

> 1. Not to rent or sell videotapes or video games designated as "restricted" to persons under 17 without parental consent, including all movies rated "R" by the Motion Picture Association of America and all video games rated "M" by the Entertainment Software Rating Board.
>
> 2. Not to rent or sell videotapes rated "NC–17" by the Motion Picture Association of America or video games rated "Adults Only" by the Entertainment Software Rating Board to persons aged 17 or under.

In addition, as part of the Pledge to Parents program, many retailers solicit from customers written instructions regarding what types of video games and movies can be rented or purchased by family members. For instance, a customer can limit all of his or her children, regardless of age, to videos rated "E" (Everyone: content suitable for age six and older) by the Entertainment Software Rating Board, or indicate that one child is permitted to rent "E" games while another can rent "T" (Teen: content suitable for age 13 and older). Thus, our voluntary system allows parents, if they so choose, to be even more restrictive than any industry- or government-enforced system would be.

In 1999, we updated our Pledge to Parents materials and provided the revised kit, at no cost, to each retail member of VSDA. We have also offered to provide the materials at cost to any other video retailer that requests them.

Each Pledge to Parents kit contains the following:

- *Customer Flyer and Parental Consent Form*—These materials provide information about the Pledge to Parents program and allow customers to indicate their restrictions or authorizations on video and video game rentals and sales by their family members.
- *Terminal-Topper Sign*—This sign, to be displayed near the cash register, draws customers' attention to Pledge to Parents and the retailer's ratings enforcement policy.
- *ID Check Sign*—We encourage retailers to post this sign, which indicates that IDs will be checked when appropriate, throughout their store and remind customers of the retailer's voluntary ratings enforcement policy.
- *Video Game Ratings Poster and Brochures*—The poster and brochures are designed to help customers make informed decisions concerning their children's video game rentals.
- *MPAA Theatrical-Size Ratings Poster*—This poster provides customers with movie ratings information to further assist them with their selection of movies.

We have encouraged our members to make maximum use of the Pledge to Parents materials and provide ratings and content information to customers of all ages. We also have strongly urged our members to check IDs whenever appropriate. We are pleased to report that the response to this program from our members has been extremely positive.

As part of the relaunch of Pledge to Parents, we conducted a substantial public outreach campaign that reached millions of consumers through television, radio, newspapers, and the Internet. The purpose of this campaign was to make parents aware of the resources available to them in video stores.

And we think parents are taking this message to heart. By and large, parents appear to be making good choices for their children's game playing and movie viewing. According to VSDA's VidTrac for the week ending March 12, 2000, all of the 10 top renting video games, and 21 of the top 25, were rated "E" or "T."

The voluntary Pledge to Parents program demonstrates our industry's commitment to the communities in which we live. Video stores and their employees are part of the neighborhoods where they are located. They often know their customers by name. They know what is acceptable and what is not acceptable in their communities. They take pride in the entertainment they bring into people's homes. And they realize that their reputations and livelihoods are on the line every time they sell or rent a video game or movie. Video retailers would not put their businesses at risk by providing to children games that their parents don't want them to have.

Finally, we must keep in mind that, in addressing the issue of violence in American society, the government cannot infringe the constitutional rights of video retailers and consumers—or of parents to raise their families as they see fit. Ultimately the responsibility for raising children lies with their parents, not the government and certainly not video store clerks.

Recognizing this, the Bipartisan Working Group on Youth Violence recommended that members of Congress meet with the entertainment industry to learn more about entertainment ratings systems and how to communicate information about the ratings systems to parents. We would be pleased to work with you to implement this recommendation.

The nation's video stores are doing their part to make sure that America's children are not exposed to violent video games without their parents' consent. Home video provides parents with the greatest control of their children's electronic game playing. Voluntary programs, such as VSDA's Pledge to Parents, are the best way to help parents exercise that control.

Thank you.

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